

**CATASTROPHIC INCIDENT SEARCH
AND RESCUE ADDENDUM**
to the
National Search and Rescue Supplement
to the
International Aeronautical and Maritime
Search and Rescue Manual



Version 4.0 | June 2023

Department of Homeland Security
Department of Defense
Department of State
Department of the Interior
Department of Commerce
Department of Transportation
National Aeronautics and Space Administration
Federal Communications Commission

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Department of Homeland Security
Department of Transportation
Federal Communications Commission

National Search and Rescue Committee

| Letter of Promulgation

Washington, D.C.
June 2023

This fourth revision of the *Catastrophic Incident Search and Rescue (CISAR) Addendum to the National Search and Rescue Supplement (NSS) to the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual* continues the National Search and Rescue Committee's (NSARC) work developing guidance for Federal responders in the conduct of disaster response search and rescue (SAR) operations.

This is the first revision of the CISAR Addendum in a decade. The NSARC revised the CISAR Addendum to accurately reflect up-to-date processes for Emergency Support Function (ESF) #9 and SAR coordination, and to encapsulate all that has been learned from decades of experience. The NSARC aims for the CISAR Addendum to continually improve national preparedness and SAR response to catastrophic incidents in support of States, Tribes, Territories/Insular Areas, and local authorities. Version 4.0 provides additional information and lessons learned from disasters that have occurred since Version 3.0 was promulgated.

This version was revised to streamline guidance for maximum efficiency. It also revised numerous sections of guidance and incorporates new ones to help agencies conduct CISAR operations in increasingly complex, confusing, and challenging environments for multiagency response. Providing efficient, up-to-date guidance to those that save lives will continue to be the cornerstone of NSARC's mission.

On behalf of the National Search and Rescue Committee,

Ms. Dana S. Tullis
Chair, National Search and Rescue Committee
Director, Emergency Management
United States Coast Guard

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| Foreword

The CISAR Addendum has been the glue fusing multiagency Catastrophic Incident Search and Rescue (CISAR) response for years. Yet as disasters have evolved in jurisdictional complexity, operational scope, and unprecedented ferocity, so too has the need for effective guidance and interagency coordination. This Addendum was rewritten with one goal in mind: prepare governments at all levels to save lives and face disasters as effectively as possible.

The NSARC directed a rewrite of the Catastrophic Incident Search and Rescue (CISAR) Addendum to ensure Federal, State, Tribal, Territorial/Insular Area, and local SAR responders have up-to-date guidance for the conduct of interagency disaster response operations.

Based on extensive research and interagency input, version 4.0 presents a complete updating of the existing guidance and a streamlining of the entire document for readability and efficiency—it is now more than a quarter shorter!

Significant changes to Version 4.0 include:

- Updating of ESF and CISAR guidance and references to reflect recent revisions to the National Response Framework (NRF) and the National SAR Supplement (NSS);
- Updating of Presidential declaration authorities and processes that were instituted after Hurricane Sandy, such as for Tribal Nations;
- A complete updating of the existing material to ensure doctrine, processes, and best practices accurately reflect what we believe to be optimal CISAR operational execution and Emergency Support Function (ESF) coordination;
- Overhaul of the structure and organization of the CISAR Addendum to optimize readability, improve efficiency, and streamline the text;
- Consolidation or removal of duplicative resources or guidance within the Addendum;
- Introduction of general guidance for CISAR in pandemics and cyber-attacks; and
- Appendix A updated to reflect the most recent ESF #9 – Search and Rescue Annex to the NRF.

As in the previous versions of the CISAR Addendum, version 4.0 provides baseline guidance and information that can improve the effectiveness of the unified command in the conduct of the CISAR and provide important guidance for the CISAR responder to save lives.

National Search and Rescue Committee

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| Introduction

In recent years, our nation faced a remarkable series of disasters and emergencies. As a result, our national response structures are evolving to both meet the disaster and emergency threats we know we will face, and best prepare the country for those we have not yet seen. The National Response Framework (NRF) is the first step in this on-going evolution, defining how we respond as a nation to the challenges before us.

Based on best practices and lessons learned, the NRF and its associated annexes were developed to provide guiding principles that enable all Federal response partners to prepare for and provide a unified national response to disasters and emergencies – from the smallest incident to the largest catastrophe.

The NRF's guiding principles include:

- Engaged partnership;
- Tiered response;
- Scalable, flexible, and adaptable operational capabilities;
- Unity of effort through unified command; and
- Readiness to act.

In support of these principles, the NSARC promulgated the CISAR Addendum to the National Search and Rescue Supplement (NSS). This version (4.0) of the CISAR Addendum is the first rewrite of the guidance in a decade and includes revised text with up-to-date guidance and processes for conducting of disaster search and rescue (SAR) operations. The purpose of the CISAR Addendum is to prepare Federal, State, Tribal, Territorial/Insular Area, and local SAR responders for unified response to catastrophic incidents requiring the integration of Emergency Support Function (ESF) #9 (SAR) operations across jurisdictions.

The CISAR Addendum details:

- The Federal Government's civil SAR response to catastrophic incidents and other ESF #9 operations;
- The Federal authorities involved in catastrophic SAR response operations; and
- What States, Tribes, Territories/Insular Areas, and local agencies should expect when Federal SAR responders are requested to assist within their jurisdictions.

The CISAR Addendum is limited in scope.

It focuses exclusively on Federal interagency guidance in the management of SAR operations during catastrophic incidents and other ESF #9 operations. It consists of SAR operations carried out as all or part of the response to an emergency or disaster declared by the President, under provisions of the NRF and ESF #9. It is not intended to replace other Federal, State, Tribal, Territorial/Insular Area, or local SAR plans.

Scalability is at the heart of the CISAR guidance.

Depending on the nature and complexity of a catastrophic incident (e.g., earthquake, hurricane, cyber or terrorist attack, etc.), CISAR operations may be required. If CISAR operations are conducted and ESF #9 is activated, operations may be either a minor or major aspect of the overall incident response. Even if CISAR operations are conducted, it may well be that State, Tribal, Territorial/Insular Area, and local authorities can conduct CISAR operations using their own SAR resources. This Addendum recognizes the need for a Federal, scalable, coordinated SAR effort that can be tailored to the incident.

An effective response to a major catastrophic incident typically requires immediate, well-planned, and coordinated large-scale actions and use of resources from multiple organizations.

Effective CISAR Planning

Successful large-scale CISAR operations depend on the development of contingency plans, as well as effective cooperation and coordination between Federal, State, Tribal, Territorial/Insular Area, and local SAR authorities before an event occurs. This includes the capability to build responders' situational awareness rapidly and seamlessly at all levels with the right information at the right time.

Knowing your SAR partners, developing interagency plans, and exercising those plans is mission critical to the conduct of mass rescue operations in a disaster.

| How to Use this Document

Version 4 of the CISAR Addendum is organized into four core “Parts” that are designed for easy quick reference depending on what sort of guidance you are looking for. They are further broken into sections of manageable topics.

- **Organization** – Part 1 details the authorities and functional roles of the numerous stakeholders potentially involved in a CISAR operation, and how those entities interoperate.
- **CISAR Management** – Part 2 focuses more on the implementation of CISAR operations, including how CISAR integrates into the National Incident Management System (NIMS); the role of SAR Mission Coordinators (SMCs); and best operational practices for coordinating and managing SAR plans and assets.
- **Special Considerations** – Part 3 covers safety and risk management to CISAR operations, including a wide range special circumstances influencing how CISAR should be managed. It consolidates numerous disaster scenarios that were previously in their own part, offering resources and guidance on how CISAR operations might be impacted by different disaster scenarios.
- **Chemical, Biological, Radiological, Nuclear, and High-Yield Explosive (CBRNE) Incidents** – Part 4 documents the processes and resources available for SAR response to chemical, biological, radiological, nuclear, and high-yield explosive device incidents.

Throughout the document, you will see call-out boxes and highlights intended to clarify or emphasize important points, provide additional resources, or provide a deeper perspective on an important issue. In addition to a wide range of tables and figures, there are two color-coded boxes you will find used extensively:

Tips & Important Information

Blue boxes provide special tips, additional information, or deeper context about the most important topics covered in the guidance.

Additional Resources

The dog-eared yellow/green boxes provide specific contact information or resources that may be helpful to you.

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| Part 1 | Organization & Authorities

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Section 1-1: CISAR Primary Reference & Guidance Documents

Table 1-1: Key CISAR References

Key CISAR References	
Robert T Stafford Disaster Relief and Emergency Assistance Act (“Stafford Act”)	Robert T. Stafford Disaster Relief and Emergency Assistance Act (P.L. 100- 707): Provides the statutory framework for a Presidential declaration of an emergency or a declaration of a major disaster, and describes the programs and processes by which the Federal Government provides disaster and emergency assistance to State, Tribal, and Territorial/Insular governments, eligible private nonprofit organizations, and individuals affected by a declared major disaster or emergency. The Stafford Act structure for the declaration process reflects the fact that federal resources under this act supplement State, Tribal, Territorial/Insular Area, and local resources for disaster relief and recovery. The Stafford Act covers all hazards, including natural disasters and terrorist events.
Flood Control and Coastal Emergencies Act, 33 USC 701n (2007) (commonly referred to as Pub. L. 84-99)	Authorizes an emergency fund for preparation for emergency response to, among other things, natural disasters, flood fighting and rescue operations, repair or restoration of flood control and hurricane protection structures, temporary restoration of essential public facilities and services, and provision of emergency supplies of water.
Economy Act (31 USC 1535)	Authorizes Federal agencies to provide goods or services, on a reimbursable basis, to other Federal agencies when more specific statutory authority does not exist.
Executive Order 12148, 44 Fed. Reg. 43239 (1979), as amended, by Executive Order 13286, 68 Fed. Reg. 10619 (2003)	Designates DHS as the primary agency for coordination of Federal disaster relief, emergency assistance, and emergency preparedness. The order also delegates the President’s relief and assistance functions under the Stafford Act to the Secretary of Homeland Security, except for the declaration of a major disaster or emergency.
Homeland Security Presidential Directive (HSPD) 5: Management of Domestic Incidents	HSPD-5 serves to enhance the ability of the United States to manage domestic incidents by establishing a single, comprehensive national incident management system. This management system is designed to cover the prevention, preparation, response, and recovery from

	terrorist attacks, major disasters, and other emergencies. The directive gives further detail on which government officials oversee and have authority for various parts of the national incident management system.
Presidential Policy Directive (PPD) 8: National Preparedness	PPD 8 is aimed at strengthening the security and resilience of the United States through systematic preparation for the threats that pose the greatest risk to the security of the Nation, including acts of terrorism, cyber-attacks, pandemics, and catastrophic natural disasters.
National Response Framework (NRF)	The NRF presents the guiding principles that enable all response partners to prepare for and provide a unified national response to disasters and emergencies. It establishes a comprehensive, national, all-hazards approach to domestic incident response.
Emergency Support Function (ESF) #9 – Search and Rescue (SAR) Annex	ESF #9 details the Federal Government’s SAR responsibilities, identifies FEMA as the ESF #9 Coordinator, and explains the duties of the Federal Agency(s) assigned as Lead Primary Agency for a specific incident requiring Federal SAR assistance (See Section 1-3: Emergency Support Function #9).
Catastrophic Incident Annex	The Catastrophic Incident Annex to the National Response Framework (NRF-CIA) establishes the context and overarching strategy for implementing and coordinating an accelerated, proactive national response to a catastrophic incident.
National Search and Rescue Plan (NSP)	The NSP is an interagency agreement that constitutes the primary authority and policy guidance for involvement of Federal Agencies (including the military), in coordinating, providing, or supporting civil SAR services so that the United States can meet both domestic needs and international commitments. When responding to requests through the National SAR system, participants normally fund their own activities.
National Search and Rescue Supplement (NSS)	The NSS is a federal manual on civil SAR that, together with its various addenda, provides extensive guidance for implementation of the NSP.
International Aeronautical and Maritime Search and Rescue Manual (IAMSAR Manual)	The IAMSAR Manual is a three-volume Manual used worldwide for aeronautical and maritime civil SAR. In the United States, the IAMSAR Manual is supplemented by the NSS and this Addendum.

Section 1-2: Catastrophic Incident SAR (CISAR)

Catastrophic Incident Search and Rescue (CISAR)

Civil SAR is composed of search operations, rescue operations, and associated civilian services provided to assist persons and property in potential or actual distress in a non-hostile environment.

CISAR consists of civil SAR operations carried out as all or part of the response to an emergency or disaster declared by the President under provisions of the NRF and ESF #9 – SAR (Appendix A). This includes disasters declared by federally recognized Tribal governments that are requested through either State or Presidential authorities, as authorized by the Sandy Improvement Recovery Act of 2013.

Catastrophic Incident

The Post-Katrina Emergency Management Reform Act of 2006 defines the term “catastrophic incident” as “any natural disaster, act of terrorism, or other man-made disaster that results in extraordinary levels of casualties or damage or disruption severely affecting the population (including mass evacuations), infrastructure, environment, economy, national morale, or government functions in an area.”

National Response Framework, page 4

The nature of CISAR could range from routine SAR operations (limited number of persons in distress) to the conduct of mass rescue operations. Two criteria must be met for an incident to be identified as CISAR:

- The response must be associated with a Presidential Declaration; and
- ESF #9 must be implemented.

Clear delineation between routine SAR, mass rescue operations, and CISAR may not be apparent. However, it is important to understand that flexible response options are available for these progressive or potentially overwhelming events. This Addendum provides standardized and flexible options for any type of CISAR operation.

Provisions of the NSP, NSS, and relevant addenda always apply to civil SAR regardless of whether the operations are CISAR. When the operations are CISAR under ESF #9, then

provisions of the NRF and its relevant supporting documents also apply and are intended to support the provisions of the NSP.

Homeland Security Presidential Directive 5 (HSPD-5)

HSPD-5 explains the Federal Government's policy on responding to disasters. HSPD-5 states:

To prevent, prepare for, respond to, and recover from terrorist attacks, major disasters, and other emergencies, the United States Government shall establish a single, comprehensive approach to domestic incident management. The objective of the United States Government is to ensure that all levels of government across the Nation have the capability to work efficiently and effectively together, using a national approach to domestic incident management.

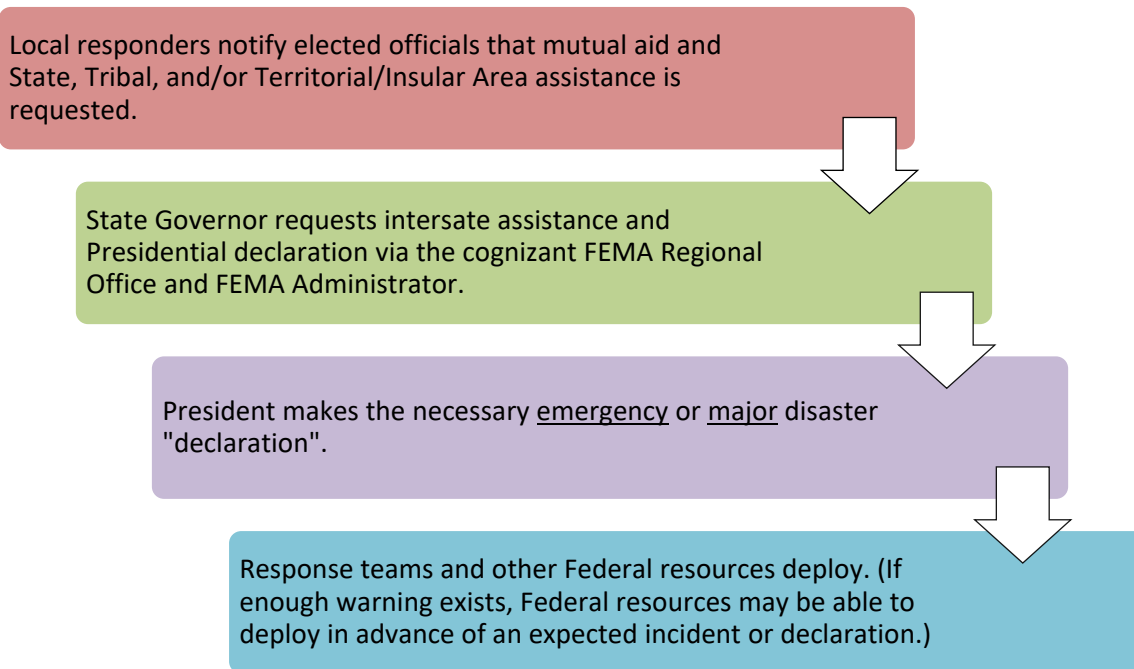
With regard to domestic incidents, in these efforts, the United States Government treats crisis management and consequence management as a single, integrated function rather than as two separate functions.

The Secretary of Homeland Security is the principal Federal official for domestic incident management. Pursuant to the Homeland Security Act of 2002, the Secretary is responsible for coordinating Federal operations within the United States to prepare for, respond to, and recover from terrorist attacks, major disasters, and other emergencies. The Secretary shall coordinate the Federal Government's resources utilized in response to or recovery from terrorist attacks, major disasters, or other emergencies when ANY of the following four conditions applies:

1. A Federal Department or Agency, acting under its own authority, has requested the assistance of the Secretary;
2. The resources of State, Tribal, Territorial/Insular, and local authorities are overwhelmed, and Federal assistance has been requested by the appropriate authorities;
3. More than one Federal department or agency has become substantially involved in responding to the incident; or,
4. The Secretary has been directed to assume responsibility for managing the domestic incident by the President.

The figure below details a typical State request for Federal assistance.

Figure 1-1: Emergency or Major Disaster Declaration



CISAR Legal Considerations

The Robert T. Stafford Disaster Relief and Emergency Assistance Act (the "Stafford Act") authorizes and describes various programs and processes by which the Federal Government provides disaster and emergency assistance to State, Tribal, and Territorial/Insular Area governments, eligible private nonprofit organizations, and individuals affected by a declared major disaster or emergency. The Stafford Act covers all hazards, including natural disasters and terrorist events. Generally, Stafford Act assistance is rendered upon request from a State Governor, when certain conditions are met, primarily that the Governor certifies that the State lacks the resources and capabilities to manage the consequences of the event without Federal assistance.

Historically, Tribal nations could only request disaster declarations through their State Governors. That is still an option. The Sandy Recovery & Improvement Act of 2013 amended the Stafford Act to also allow federally recognized Indian tribal governments the option for a direct disaster declaration through State Governors or independent of State government.

Federal SAR resources deploying in support of a Stafford Act Declaration must balance their legal authority under the Stafford Act and other applicable authorities with the concurrent authority of State, Territorial/Insular Area, Tribal, and local jurisdictions. The Stafford Act provides authority to Federal SAR resources to meet immediate threats to life and property resulting from a major disaster. Designated authorities include performing any necessary operations on public or private lands or waters that are essential to saving lives and protecting property, public health, and safety. These operations can include, among others, SAR; debris removal; and demolition of unsafe structures that endanger the public (42 USC 5170b(a)(3)).

Similar authority exists for Emergency Declarations under 42 USC 5192. In addition, States must agree to assist Federal agencies in all support and local jurisdictional matters (44 CFR 206.208).

State, Tribal, Territorial/Insular, and local authorities continue to maintain their inherent authority over their jurisdictions. This means Federal SAR resources normally must adhere to the instructions of responsible authorities even when deployed in support of a declaration under the Stafford Act.

Section 1-3: Emergency Support Function #9 (Search and Rescue)

Overview of Emergency Support Functions (ESFs)

As detailed in the NRF, Federal, State, Tribal, Territorial/Insular Area, and local governments, as well as other organizations, organize resources and capabilities under 15 ESFs, each with a designated coordinator (Table 1-2: ESF Roles and Responsibilities). ESFs align categories of resources and provide strategic objectives for their use.

Additionally, ESFs provide the structure for coordinating Federal interagency support for a federal response to an incident. ESFs are mechanisms for grouping functions most frequently used to provide Federal support to States and Federal-to-Federal support, both for declared major disasters and emergencies under the Stafford Act and for non-Stafford Act incidents.

Each ESF Annex details the resources and capabilities available to support their specific functional activities. Several ESFs incorporate multiple components, with Primary Agencies designated for each component to ensure seamless integration of – and transition between – preparedness, response, and recovery activities.

ESFs with multiple Primary Agencies (e.g., ESF #9 – SAR) designate an ESF Coordinator for the purposes of pre-incident planning and coordination of Primary and Support Agency efforts throughout the incident.

ESFs may be selectively activated for both Stafford Act and non-Stafford Act incidents where State, Tribal, or Territorial/Insular Area authorities request Department of Homeland Security (DHS) assistance, or under other circumstances as defined in HSPD-5.

Not every incident results in the activation of ESFs. Activation depends on the nature and magnitude of the event, the suddenness of onset, and for ESF #9, the knowledge or expectation that the incident may result in a request for an integrated SAR response and the capabilities available to local SAR authorities may be inadequate or exceeded.

Table 1-2: ESF Roles and Responsibilities

ESF Roles and Responsibilities (Reference: National Response Framework)	
ESF	SCOPE
<p>ESF #1 Transportation</p> <p>Coordinator: Department of Transportation</p>	<p>Coordinates the support of management of transportation systems and infrastructure, the regulation of transportation, management of the Nation’s airspace, and ensuring the safety and security of the national transportation system. Functions include but are not limited to the following:</p> <ul style="list-style-type: none"> • Transportation modes management and control; • Transportation safety; • Stabilization and reestablishment of transportation infrastructure; • Movement restrictions; and • Damage and impact assessment
<p>ESF #2 Communications</p> <p>Coordinator: Department of Homeland Security Cybersecurity and Infrastructure Security Agency</p>	<p>Coordinates government and industry efforts for the reestablishment and provision of critical communications infrastructure and services, facilitates the stabilization of systems and applications from malicious activity (e.g., cyber), and coordinates communications support to response efforts (e.g., emergency communication services and emergency alerts and telecommunications). Functions include but are not limited to the following:</p> <ul style="list-style-type: none"> • Coordination with telecommunications and information technology industries; • Coordination of the reestablishment and provision of critical communications infrastructure; • Protection, reestablishment, and sustainment of national cyber and information technology resources; • Oversight of communications within the federal response structures; and • Facilitation of the stabilization of systems and applications from cyber events.

<p>ESF #3 Public Works and Engineering</p> <p>Coordinator: Department of Defense U.S. Army Corps of Engineers</p>	<p>Coordinates the capabilities and resources to facilitate the delivery of services, technical assistance, engineering expertise, construction management, and other support to prepare for, respond to, and recover from a disaster or an incident. Functions include but are not limited to the following:</p> <ul style="list-style-type: none"> • Infrastructure protection and emergency repair; • Critical infrastructure reestablishment; • Engineering services and construction management; and • Emergency contracting support for lifesaving and life-sustaining services.
<p>ESF #4 Firefighting</p> <p>Coordinators: Department of Agriculture U.S. Forest Service Department of Homeland Security Federal Emergency Management Agency U.S. Fire Administration</p>	<p>Coordinates the support for the detection and suppression of fires. Functions include but are not limited to supporting wildland, rural, and urban firefighting operations.</p>
<p>ESF #5 Information and Planning</p> <p>Coordinator: Department of Homeland Security Federal Emergency Management Agency</p>	<p>Supports and facilitates multiagency planning and coordination for operations involving incidents requiring federal coordination. Functions include but are not limited to the following:</p> <ul style="list-style-type: none"> • Deliberate and crisis action planning; and • Information collection, analysis, visualization, and dissemination.
<p>ESF #6 Mass Care, Emergency Assistance, Housing, and Human Services</p> <p>Coordinator: Department of Homeland Security Federal Emergency Management Agency</p>	<p>Coordinates the delivery of mass care and emergency assistance. Functions include but are not limited to the following:</p> <ul style="list-style-type: none"> • Mass care; • Emergency assistance; • Temporary housing; and • Human services.

<p>ESF #7 Logistics</p> <p>Coordinators: General Services Administration Department of Homeland Security Federal Emergency Management Agency</p>	<p>Coordinates comprehensive incident resource planning, management, and sustainment capability to meet the needs of disaster survivors and responders. Functions include but are not limited to the following:</p> <ul style="list-style-type: none"> • Comprehensive national incident logistics planning, management, and sustainment capability; and • Resource support (e.g., facility space, office equipment and supplies, and contracting services).
<p>ESF #8 Public Health and Medical Services</p> <p>Coordinator: Department of Health and Human Services</p>	<p>Coordinates the mechanisms for assistance in response to an actual or potential public health and medical disaster or incident. Functions include but are not limited to the following:</p> <ul style="list-style-type: none"> • Public health; • Medical surge support, including patient movement; • Behavioral health services; • Mass fatality management; and • Veterinary, medical, and public health services.
<p>ESF #9 Search and Rescue</p> <p>Coordinator: Department of Homeland Security Federal Emergency Management Agency</p>	<p>Coordinates the rapid deployment of search and rescue resources to provide specialized life-saving assistance. Functions include but are not limited to the following:</p> <ul style="list-style-type: none"> • Structural collapse (urban) search and rescue; • Maritime/coastal/waterborne search and rescue; and • Land search and rescue.
<p>ESF #10 Oil and Hazardous Materials Response</p> <p>Coordinator: Environmental Protection Agency</p>	<p>Coordinates support in response to an actual or potential discharge and/or release of oil or hazardous materials. Functions include but are not limited to the following:</p> <ul style="list-style-type: none"> • Environmental assessment of the nature and extent of oil and hazardous materials contamination; and • Environmental decontamination and cleanup, including buildings/structures and management of contaminated waste.

<p>ESF #11 Agriculture and Natural Resources</p> <p>Coordinator: Department of Agriculture</p>	<p>Coordinates a variety of functions designed to protect the Nation’s food supply, respond to pest and disease incidents impacting agriculture, and protect natural and cultural resources. Functions include but are not limited to the following:</p> <ul style="list-style-type: none"> • Nutrition assistance; • Agricultural disease and pest response; • Technical expertise, coordination, and support of animal and agricultural emergency management; • Meat, poultry, and processed egg products safety and defense; and • Natural and cultural resources and historic properties protection.
<p>ESF #12 Energy</p> <p>Coordinator: Department of Energy</p>	<p>Facilitates the reestablishment of damaged energy systems and components and provides technical expertise during an incident involving radiological/nuclear materials. Functions include but are not limited to the following:</p> <ul style="list-style-type: none"> • Energy infrastructure assessment, repair, and reestablishment; • Energy industry utilities coordination; and • Energy forecast.
<p>ESF #13 Public Safety and Security</p> <p>Coordinator: Department of Justice Bureau of Alcohol, Tobacco, Firearms, and Explosives</p>	<p>Coordinates the integration of public safety and security capabilities and resources to support the full range of incident management activities. Functions include but are not limited to the following:</p> <ul style="list-style-type: none"> • Facility and resource security; • Security planning and technical resource assistance; • Public safety and security support; and • Support to access, traffic, and crowd control

<p>ESF #14 Cross-Sector Business and Infrastructure</p> <p>Coordinator: Department of Homeland Security Cybersecurity and Infrastructure Security Agency</p>	<p>Coordinates cross-sector operations with infrastructure owners and operators, businesses, and their government partners, with particular focus on actions taken by businesses and infrastructure owners and operators in one sector to assist other sectors to better prevent or mitigate cascading failures between them. Focuses particularly on those sectors not currently aligned to other ESFs (e.g., the Financial Services Sector). Functions include but are not limited to the following:</p> <ul style="list-style-type: none"> • Assessment, analysis, and situational awareness of cross-sector challenges; • Facilitates operational coordination with critical infrastructure sectors; • Social and economic community impact assessments; and • Promote resilient recovery assistance to States, local governments, and the private sector.
<p>ESF #15 External Affairs</p> <p>Coordinator: Department of Homeland Security</p>	<p>Coordinates the release of accurate, coordinated, timely, and accessible public information to affected audiences, including the government, media, NGOs, and the private sector. Works closely with State, Tribal, Territorial/Insular Area, and local officials to ensure outreach to the whole community. Functions include but are not limited to the following:</p> <ul style="list-style-type: none"> • Public affairs and the Joint Information Center; • Intergovernmental (local, state, tribal, territorial/insular area, nongovernmental, and private sector) affairs; • Congressional affairs; • Emergency public information and protective action guidance; • Media and community relations; • Congressional and international affairs; and • Tribal and insular affairs.

ESF #9 – Search and Rescue

Federal assistance under ESF #9 (Appendix A: Emergency Support Function #9), coordinates the provisioning of Federal SAR resources in lifesaving operations supporting the State or Federal Agency requesting resources.

Assistance under ESF #9 is scalable to meet the specific needs of each incident, based upon the nature and magnitude of the event and the capabilities of State, Tribal, Territorial/Insular Area, and local SAR resources.

Figure 1-2: Stafford Act Declaration/ESF #9 Concept represents the planning, interagency coordination, and conduct of ESF #9 SAR operations.

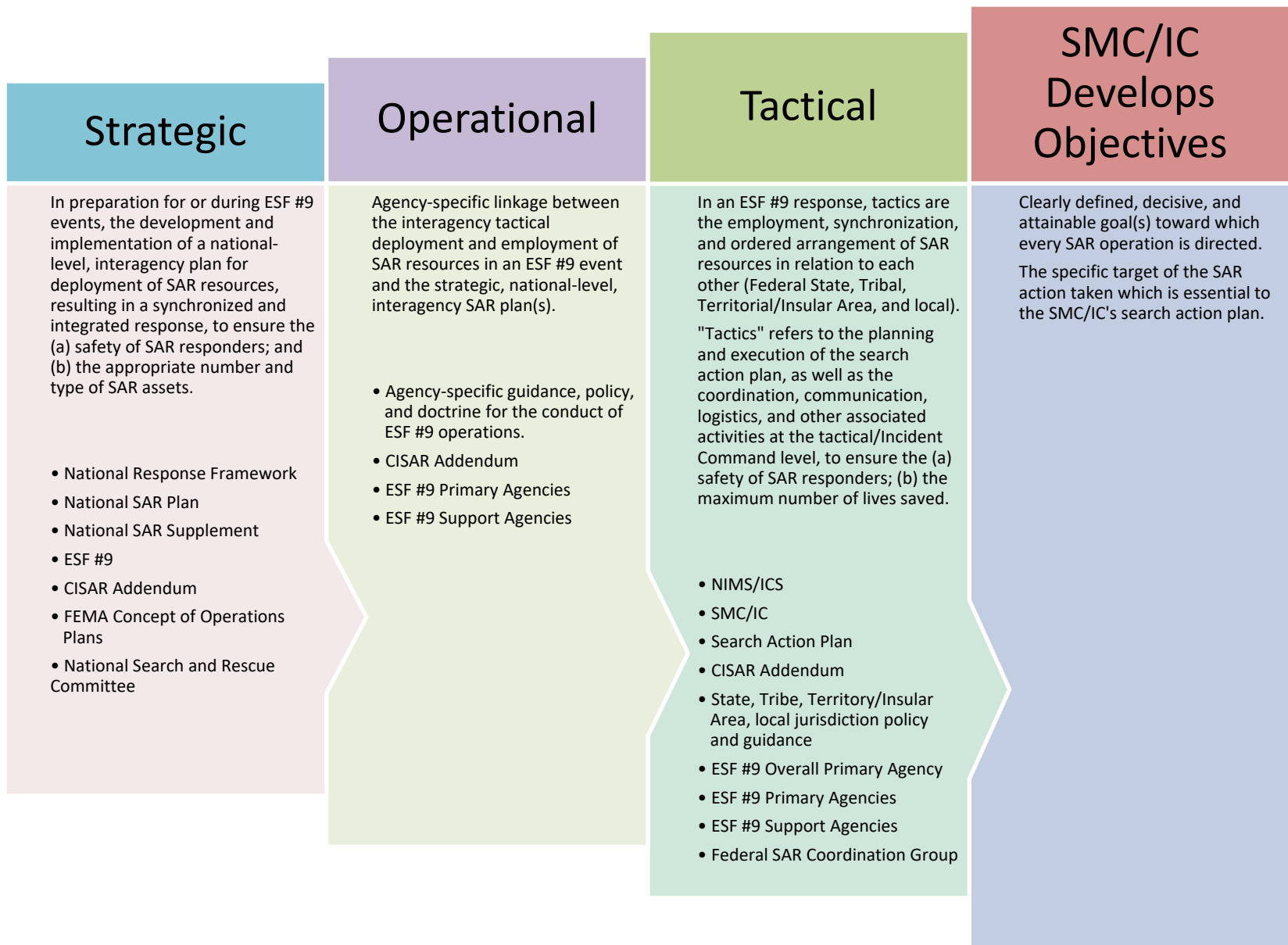


Figure 1-2: Stafford Act Declaration/ESF #9 Concept

While FEMA coordinates the overall planning and conduct of federal disaster response operations under the Stafford Act, the strategic, national level, interagency ESF #9 planning and guidance development is coordinated through the NSARC.

In the NSARC, the Federal Agencies responsible for the planning and conduct of ESF #9 operations are:

- FEMA Urban Search and Rescue (US&R);
- U.S. Coast Guard (USCG);
- Department of the Interior (DOI)/National Park Service (NPS); and
- Department of Defense (DoD)/Commander, U.S. Northern Command (CDRUSNORTHCOM)

At the operational level, FEMA US&R, USCG, NPS, and CDRUSNORTHCOM (the ESF #9 Primary Agencies) are:

- Responsible for the conduct and implementation of ESF #9 operations; and
- Development of agency specific plans, doctrine, training, tactics, techniques, and procedures for the conduct of ESF #9 operations.

At the tactical level, the ESF #9 Primary Agencies conduct CISAR operations at the request of the State/SAR Mission Coordinator (SMC)/Incident Commander (IC). Federal SAR assistance is normally conducted under an ESF #9 Mission Assignment (MA).

ESF #9 Purpose

“Emergency Support Function (ESF) #9 – Search and Rescue rapidly deploys Federal SAR resources to provide lifesaving assistance to State, Tribal, Territorial, and local SAR Coordinator(s), SAR Mission Coordinator(s), and other authorities when a request for assistance is made or anticipated from an authority recognized by the NRF for incidents or potential incidents requiring an integrated SAR response.”

ESF #9 – Search and Rescue Annex

ESF Primary Agency (General Requirements)

An ESF Primary Agency is a Federal Agency with significant authorities, roles, resources, or capabilities for a particular function within an ESF.

A Federal Agency designated as an ESF Primary Agency serves as a Federal executive agent under the Federal Coordinating Officer (or Federal Resource Coordinator for non-Stafford Act

incidents) to accomplish the ESF mission.

ESF #9 has four Primary Agencies. Table 1-3: ESF #9 Primary Agency Operations lists the ESF #9 Primary Agencies, their SAR environment responsibility, and an operational overview of each respective Primary Agency.

Table 1-3: ESF #9 Primary Agency Operations

ESF #9 Primary Agencies		
Type of SAR	Primary Agency	Operational Overview
Structure Collapse (Urban) SAR (US&R)	DHS / FEMA	Includes operations for natural and man-made disasters and Catastrophic Incidents as well as other structural collapse operations that primarily require DHS/FEMA US&R task force operations. The National US&R Response System integrates DHS/FEMA US&R task forces, Incident Support Teams (ISTs), and technical specialists. The Federal structural collapse SAR response integrates DHS/FEMA task forces in support of integrated SAR operations conducted in accordance with the NSP.
Maritime/Coastal/Waterborne SAR	DHS / USCG	Includes operations for natural and man-made disasters that primarily require DHS/USCG air, ship, boat, and response team operations. The Federal maritime/coastal/waterborne SAR response integrates DHS/USCG resources in support of integrated SAR operations conducted in accordance with the NSP.
Land SAR	DOI / NPS --and-- DoD	Includes operations that require aviation and ground forces to meet mission objectives other than maritime/coastal/waterborne and structural collapse SAR operations as described above. Land SAR Primary Agencies will integrate their efforts to provide an array of diverse capabilities under ESF #9.

ESF #9 (Appendix A) lists the duties and responsibilities of each Primary Agency.

ESF #9 Overall Primary Agency

The purpose of the ESF #9 Overall Primary Agency (OPA) is to coordinate the provisioning and response of Federal SAR resources (both Primary and Support Agencies) to the State, Tribe,

Territory/Insular Area, or other Federal Agency requesting those resources as rapidly as possible.

In order to expedite resource requests, the ESF #9 OPA should have representatives at key response coordination locations (e.g., National Response Coordination Center (NRCC), Regional Response Coordination Center (RRCC), Joint Field Office (JFO), and State, Tribal, Territorial/Insular Area and local Incident Commands (SAR Subject Matter Expert), Emergency Operation Centers (EOCs), or SAR Branches).

Section 1-4: ESF #9 Core Responsibilities

DHS/FEMA – ESF #9 Coordinator

As ESF #9 coordinator, DHS/FEMA, oversees the preparedness activities and coordinates with its primary and support agencies.

Per the NRF, responsibilities of the ESF #9 coordinator include the following:

- Maintaining contact with ESF primary and support agencies through conference calls, meetings, training activities, and exercises;
- Monitoring the ESF's progress in delivering the core capabilities in an effort to stabilize the incident;
- Coordinating efforts with corresponding private sector, NGO, and federal partners;
- Ensuring the ESF is engaged in appropriate planning and preparedness activities; and
- Sharing information and coordinating across the spectrum of primary and support agencies.

Additionally, DHS/FEMA will:

- Activate ESF #9 when an incident is anticipated or occurs that may result in a request for an integrated SAR response to an impacted area;
- Designate the OPA for an ESF #9 SAR response (based on incident circumstances, SAR environment, type of response required, etc.);
- Coordinate with other ESFs to ensure the most expedient and efficient resources are mobilized;
- Coordinate before, during, and after an incident, including pre-incident planning and coordination;
- Conduct formal, ESF #9 specific, after-action reviews; and
- Coordinate ESF #9 Priority Information Requirements and processes to rapidly build situational awareness with all Primary Agencies.

ESF #9 Primary Agency Responsibilities

ESF #9 primary agencies have significant authorities, roles, resources, and capabilities for a particular function within ESF #9 and are responsible for the following:

- Orchestrating support and strategy development within their functional area for the appropriate response core capabilities and other ESF missions;
- Notifying and requesting assistance from support agencies;

- Managing mission assignments (MAs) during Stafford Act responses, and coordinating with support agencies, as well as appropriate state officials, operations centers, and other stakeholders;
- Coordinating resources resulting from MAs;
- Working with all types of organizations to maximize the use of all available resources;
- Monitoring progress in delivering core capability and other ESF missions, and providing that information as part of situational and periodic readiness or preparedness assessments;
- Planning for incident management, short-term recovery operations, and transition to long-term recovery support operations;
- Maintaining trained personnel to support interagency emergency response and support teams;
- Identifying new equipment or capabilities required to prevent or respond to new or emerging threats and hazards or to validate and improve capabilities to address changing risks;
- Promoting physical accessibility, programmatic inclusion, and effective communication for the whole community, including individuals with disabilities;
- Manage their respective SAR resources in the affected area, including frequent coordination with local public safety agencies; and
- Coordinate logistical support for their respective resources during field operations.

Core Guidance for ESF #9 Primary Agencies

- FEMA will normally provide MAs for the ESF #9 Primary Agency representatives.
- ESF #9 Federal SAR resources operate in support of the authority with local jurisdiction, State, Tribal, Territorial/Insular Area, or local authorities.
- Each ESF #9 Primary Agency should plan for:
 - “Notice” events (e.g., hurricanes); and
 - “No-notice” events (e.g., earthquakes, tsunamis, terrorist attack, etc.).
- Pre-planning and coordination between the ESF #9 Primary Agencies (at all organizational levels) BEFORE an event occurs must be conducted to ensure lifesaving resources are rapidly provided when requested during a disaster.
- Jurisdictions have different SAR capabilities and response plans. Every ESF #9 Primary Agency should begin coordination and planning with their respective partners before an event occurs, to understand their potential disaster scenarios and what SAR resources would likely be requested.
- State SAR Coordinators may not have the experience or plans for coordinating a unified Federal SAR response during a major disaster. Appropriately champion the proven

efficiencies of an integrated planning cell (State, Federal, and local ESF #9 agencies) with the Authority Having Jurisdiction (AHJ). Any assistance the ESF #9 Primary Agencies can provide – such as experienced SAR planners or even liaison officers with limited knowledge of disaster SAR operations – can be of help. In many instances, just having extra people available to assist may be of considerable value.

- Anticipate using this CISAR Addendum as operational guidance during a CISAR operation when Federal SAR resources are requested by a State(s), FEMA Region, or other Federal Agency.
- Anticipate State(s) not understanding how to rapidly request Federal SAR resources (especially in the high stress environment of a disaster/mass rescue response). FEMA Mission Assignment Managers, ESF #9 Primary Agencies, and Defense Coordinating Officers' (DCO) representatives located at the JFO, IMAT, Incident Command, State EOC, and/or in the FEMA RRCC can assist in expediting this process.
- Rapid deployment and employment of SAR capabilities is necessary to facilitate life-saving activities. ESF #9 Primary Agencies should leverage all available authorities to pre-position or employ resources in coordination with SMCs regardless of the status of state requests.
- Do not let paperwork slow the provisioning of SAR resources. If in doubt, “launch!” When lives are at stake, a bias towards action will always be better than grappling with indecision and/or bureaucracy. Federal SAR Coordinator authority enables a federal life-saving response for routine SAR needs within the United States. During declared disasters, SAR Coordinator authority is not vacated within the disaster area and can be leveraged to enable a Federal SAR response to a valid civil request, apart from Stafford Act processes, to save lives and mitigate human suffering. Additionally, the National SAR Plan authorizes mutual support between SAR Coordinators outside the Stafford and Economy Acts for the same purposes. SAR Coordinator authority is an important tool to save lives and mitigate human suffering when FEMA’s MA process is not timely enough, or at the outset of a no-notice event, when the SAR- Operations Coordination Element (OCE) can immediately activate and leverage viable Federal SAR capability within and on the periphery of a disaster area. A SAR response within the SAR window (defined as immediately following an event and lasting up to 96 hours) is critical to successful SAR operations. *(NOTE: When using SAR Coordinator authority, every attempt should be made to keep FEMA, other interagency partners, and State, Tribe, Territory/Insular, and local, authorities informed so as not to disrupt the efficiency of unity of effort and unity of command.)*
- FEMA US&R Task Forces have no airlift capability. While ESF #1 – Transportation, may seem to be the preferred means to airlift SAR personnel to the disaster site, anticipate using and/or dedicating other ESF #9 Primary Agency airlift resources to rapidly deploy FEMA US&R Task Force and Incident Support Team (IST) personnel to the scene.
- Under ESF #9, the NPS has the only authorized, Federal swift water SAR capability.
- The designated ESF #9 OPA, as well as the other ESF #9 Primary Agencies, should provide representatives to key coordination locations to assist in the SAR resource

coordination process. Representatives should have a good understanding of NIMS/ICS, ESF #9, the MA process, etc., and have the communications capability to contact the NRCC and other ESF #9 Primary Agency points of contact (Coast Guard Areas/Districts, CDRUSNORTHCOM, NPS Emergency Services, FEMA US&R Task Forces and Incident Support Teams, etc.).

- The ESF #9 OPA will assist FEMA US&R in standing the watch at the FEMA NRCC ESF #9 Desk. Each ESF #9 Primary Agency must plan for this 24-hour watchstander requirement.
- The ESF #9 Primary Agencies should anticipate sending representatives to the affected State EOCs, the FEMA RRCC, and/or a JFO.
- Each FEMA Region processes MAs differently. Each ESF #9 Primary Agency should plan with their respective States/FEMA Regions how an ESF #9 MA will be processed before a disaster occurs.
- Under the Stafford Act, the ESF #9 Primary Agencies may be required to provide SAR resources to Puerto Rico, U.S. Virgin Islands, Guam, American Samoa, the Commonwealth of the Northern Mariana Islands, Federated States of Micronesia, and the Republic of the Marshall Islands (see Addendum section on U.S. Territories).
- Federal SAR resources contracted to the State under an MA will continue to follow Agency specific policies, procedures, and doctrine in the conduct of SAR operations. The only difference is that the State(s) has assumed SMC and will coordinate the SAR response within their respective State(s).
- The planning and application of effective contingency air traffic and airspace management measures, including disaster Temporary Flight Restrictions (TFRs), is often critical to safe and efficient aerial SAR missions. The Incident Command (and ESF #9 Primary Agencies) must coordinate closely with Federal Aviation Administration (FAA) operations liaisons deployed to the NRCC as CISAR aerial operations are planned and carried out.

ESF #9 Support Agency Roles & Responsibilities

ESF support agencies have specific capabilities or resources that support primary agencies in executing the mission of the ESF. Activities of these supporting agencies typically include the following:

- Participating in planning for incident management, short-term recovery operations, transition to long-term recovery support operations, and the development of supporting operational plans, standard operating procedures, checklists, or other job aids;
- Providing input to periodic readiness assessments;
- Maintaining trained personnel to support interagency emergency response and support teams;

- Identifying new equipment or capabilities required to respond to new or emerging threats and hazards, or to improve the ability to address existing threats; and
- Coordinating resources resulting from response MAs.

Figure 1-3: General ESF #9 SAR Response provides a general description of an ESF #9 response, detailing the responsibilities of the OPA, other Primary Agencies and the general flow of the response. Every ESF #9 event is different. This figure only provides a general flow of the information and resourcing of SAR assets to the requesting government authority.

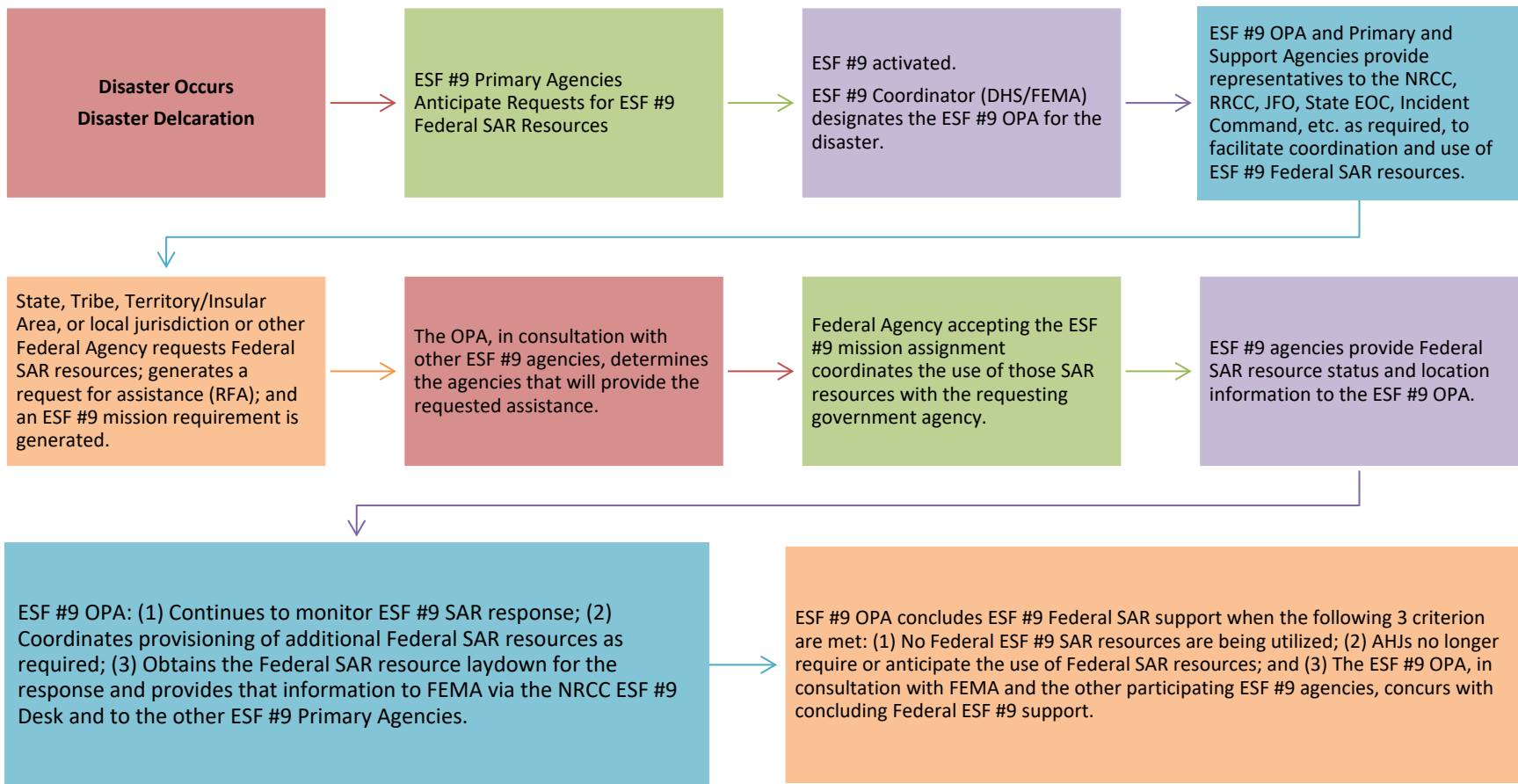


Figure 1-3: General ESF #9 SAR Response

(Note: Figure 1-3 above provides a general response for a “notice” event. For a “no-notice” event, Federal SAR resources will respond as required, potentially followed by the generation of an MA.)

Mission Assignments (MAs)

The Stafford Act provides that FEMA may issue MAs to any Federal Agency, with or without reimbursement, to utilize its authorities and the resources granted to it under Federal law in support of disaster relief efforts.

The FEMA Disaster Relief Fund (DRF) is available for purposes of the Stafford Act. Reimbursement may be provided from the DRF for activities conducted pursuant to these actions. However, the DRF is not available for activities:

- Not authorized by the Stafford Act;
- Undertaken under other authorities or agency missions; or
- That are non-Stafford Act incidents requiring a coordinated Federal response.

MAs are a work order issued by FEMA directing an agency to provide a specified service and/or goods for a specified amount of time and reimbursable funding. MAs can be issued by FEMA's NRCC, an RRCC, or a Joint Field Office (JFO) established after a Presidential Disaster Declaration (PDD) has been issued (RFAs may be submitted and MAs can also be issued through the FEMA surge account in anticipation of a PDD).

Specifically, FEMA issues MAs to Federal Agencies to:

- Address a State's request for Federal Assistance to meet unmet emergency needs; or
- Support overall Federal operations pursuant to, or in anticipation of, a Stafford Act declaration.

ESF #9 Primary Agencies providing SAR resources during a disaster SAR response can be issued an MA for SAR resources provided to the requesting State(s).

Processes (e.g., Pre-Scripted Mission Assignments) for expedited issuance of ESF #9 MAs for Federal SAR resources should be coordinated by each Primary Agency with DHS/FEMA (ESF #9 Coordinator).

ESF #9 Planning and Coordination

Successful, Federal ESF #9 SAR support to the State, Tribe, Territory/Insular Area, or Federal Agency requesting the resources, begins with effective interagency planning and coordination before a disaster occurs.

Knowing and understanding each ESF #9 Primary Agency's points of contact, procedures for coordinating SAR resources, and capabilities is critical for providing the correct, requested SAR resources in a timely manner.

ESF #9 planning and coordination needs to occur at all ESF #9 Primary Agency organization levels. The challenge is that each ESF #9 Primary Agency organizes and coordinates SAR operations and resources differently.

Table 1-4: ESF #9 Primary Agency Planning and Coordination Matrix is a planning and coordination matrix that describes at which organization level each ESF #9 Primary Agency should engage their respective peers for ongoing disaster planning and SAR resource coordination.

Table 1-4: ESF #9 Primary Agency Planning and Coordination Matrix

ESF #9 Primary Agency Planning and Coordination Matrix				
	DoD	USCG	NPS	FEMA
National, Interagency ESF #9 Policy Development/Coordination	Office of Secretary of Defense, Joint Staff	Office of Search and Rescue, USCG HQ	Deputy Chief, Emergency Services NPS HQ	US&R Branch Chief, FEMA HQ
National NRCC ESF #9 level planning and coordination	Joint Staff USNORTHCOM National Guard Bureau	Office of Search and Rescue, USCG HQ	Deputy Chief, Emergency Services NPS HQ	US&R Branch Chief, FEMA HQ
Regional level planning and coordination	USNORTHCOM/ Air National Guard (ANG) / Army National Guard (ARNG)	LANTAREA/ PACAREA	Deputy Chief, Emergency Services NPS HQ	FEMA Region ESF #9 Reps
JFO level planning and coordination	USNORTHCOM / National Guard	District LANTAREA/ PACAREA	Regional Emergency Coordinator NPS	FEMA Region ESF #9 Reps
State level planning and coordination	USNORTHCOM (J36 / Joint Personnel Recovery Center (JPRC)) / National Guard (as required)	Sector and District	Regional Emergency Coordinator NPS	FEMA Region ESF #9 Reps
Local/IC level planning and coordination	USNORTHCOM (J36 / JPRC) / National Guard (as required)	Sector	Park Emergency Services Coordinator	FEMA Region ESF #9 Reps

Section 1-5: Federal SAR Responsibilities

General SAR Provisions

The NRF provides an overview of key Federal roles and responsibilities in disaster response operations. In particular, the ESF #9 Annex to the NRF designates the four Federal Agencies as Primary Agencies, based on their respective SAR environment responsibility for each specific event.

ESF #9 SAR operations are normally coordinated by the SMC/IC as part of the overall response to the disaster.

By comparison, the NSP provides an overview of key Federal roles and responsibilities for routine (non-ESF #9) SAR operations. Federal SAR Coordinators (SC), responsible for the provisioning and equipping of SAR services within their respective SAR regions, are identified.

Routine (non-ESF #9) SAR operations under the NSP are coordinated by an SMC within that specific SAR region.

ESF #9 SAR Operations vs. Routine SAR

ESF #9 SAR operations are conducted when a State, Tribe, Territory/Insular Area, or other Federal Agency requests Federal SAR assistance.

ESF #9 Federal SAR resources can be requested for both Stafford Act disasters and non-Stafford SAR operations. Per the NRF, the NSP and its associated documents are identified as key policy and guidance documents for implementing ESF #9 operations.

Table 1-5: ESF #9 Operations vs. Routine SAR highlights the differences between CISAR operations and routine SAR.

Table 1-5: ESF #9 Operations vs. Routine SAR

ESF #9 Operations vs. Routine SAR		
	ESF #9 SAR Operations	Routine (non-ESF #9) SAR
What type of SAR is conducted?	Federal ESF #9 assistance consists of SAR operations carried out as all or part of the response to an emergency or disaster declared by the President under provisions of the NRF and ESF #9.	Any SAR operations not conducted under ESF #9.

What guidance applies?	The NRF, ESF #9 Annex, IAMSAR Manual, NSP, NSS, this Addendum, and Agency-specific policy, doctrine, and State ESF #9 / SAR plans and procedures.	IAMSAR Manual, NSP, NSS, and Agency specific policy and doctrine.
Who is responsible for coordinating the SAR mission?	See Table 1-6.	See Table 1-6.
What Command and Control system will be used?	NIMS/ICS	As per the NSP, various command and control systems are used based on agency specific policies and procedures. In the continental U.S. and Alaska, state-led SAR operations are normally conducted using NIMS/ICS. In the maritime SAR regions, the USCG will normally use the international SAR system as detailed in the IAMSAR Manual.

NSP: Federal SAR Coordinator (SC)

According to the NSP, a Federal SC is one or more persons or agencies with overall responsibility for establishing and providing SAR services, and for ensuring that planning for those services is properly coordinated.

Similar to the ESF #9 Primary Agencies, the Federal SCs identified in the NSP are associated with certain types of SAR, but also with responsibilities for certain geographic areas known as SAR regions (SRRs).

(Note: Details about SRRs and associated responsibilities are provided in the NSS.)

Federal SC responsibilities apply to all relevant types of SAR covered by the NSP within each SRR. Additionally, certain SAR responsibilities for SAR services have been assumed by Federal SCs according to agreements signed with States.

Summary of Federal Responsibilities

Refer to ESF #9 for information about Primary and Support Agencies, the types of CISAR

operations, and the responsible OPA for each. Table 1-6 further explains the federal responsibilities in CISAR and routine SAR operations.

Refer to the NSP concerning Federal SC responsibilities.

It is important to understand that the NSP applies to all SAR activities, including when ESF #9 is activated. The ESF #9 Primary Agencies will provide federal SAR resources for a CISAR incident. The designated ESF #9 Primary Agency has lead responsibility in coordinating the federal SAR resources in support of the requesting FEMA Region, State, Tribe, Territory/Insular Area for the disaster.

Table 1-6: Federal Responsibilities: Routine SAR and ESF #9 SAR Operations

Federal Responsibilities: ESF #9 SAR Operations and Routine SAR	
ESF #9 SAR Operations	Routine SAR (non-ESF #9) Operations
ESF #9: Primary Agencies	NSP: Federal SAR Coordinators (SCs)
<p>Generally, a Primary Agency is the Federal Agency with significant authorities, roles, resources, or capabilities for a particular function within an ESF. Under ESF #9 in particular, the OPA is designated by the ESF #9 Coordinator (FEMA US&R) based on the nature of the CISAR environment (Table 1-3). The other Primary and Support Agencies assist the OPA by providing SAR resources as required.</p> <p>When Federal SAR resources are provided to the requesting government authority, command relationships will normally be in support of FEMA and SMC/IC.</p>	<p>SAR Coordinator: One or more persons or agencies with overall responsibility for establishing and providing SAR services, and for ensuring that planning for those services is properly coordinated.</p> <p>The SMC is the official temporarily assigned to coordinate a SAR response to an actual or apparent distress situation within the SAR region.</p>
<p>Per ESF #9, the Primary Agencies are responsible for the following SAR environments:</p> <p>FEMA US&R: Urban SAR</p> <p>USCG: Maritime/Coastal/Waterborne SAR</p> <p>DoD/CDRUSNORTHCOM and NPS: Land SAR</p> <p><i>(Note: The NSP remains applicable, even during CISAR operations. Federal SAR Coordinators will continue to oversee the conduct SAR operations in their respective area of responsibility.)</i></p>	<p>Federal SCs are responsible for the following SRRs:</p> <p>U.S. Northern Command: Continental U.S. and Alaska.</p> <p>USCG: Maritime, coastal, and waterborne SAR Regions, Hawaii, and navigable waters over which the U.S. has jurisdiction.</p> <p>National Park Service: National Parks</p>

Section 1-6: Federal Emergency Management Agency (FEMA)

FEMA Regional Offices

FEMA has ten Regional Offices (Figure 1-7: FEMA Regions) that:

- Support development of NRF-related response plans;
- Assist States, Tribes, Territories/Insular Areas, and local communities to improve readiness; and
- Mobilize FEMA assets and evaluation teams.

FEMA, ESF #9, and Urban SAR (US&R) Responsibilities

FEMA is the ESF #9 Coordinator. In addition, FEMA is the ESF #9 Primary Agency for Structural Collapse SAR, which includes operations for natural and man-made disasters and catastrophic incidents as well as other structural collapse operations that primarily require FEMA US&R Task Force operations under ESF #9.

The FEMA US&R Branch develops national US&R policy, provides planning guidance and coordination assistance, standardizes task force procedures, evaluates task force operational readiness, funds special equipment and training within available appropriations, and reimburses, as appropriate, task force costs incurred as a result of ESF #9 deployment.

National US&R Response System

FEMA manages the National US&R Response System, a framework for organizing State, Tribal, Territorial/Insular Area, and local partner emergency response teams as integrated Federal US&R Task Forces. The 28 task forces are located throughout the continental U.S. (Figure 1-4: FEMA US&R Task Force Locations) and are equipped with the necessary tools, equipment, skills, and techniques, and can be deployed by FEMA to assist authorities in rescuing victims of structural collapse incidents or to assist in other SAR operations in support of ESF #9.

Upon activation under the NRF, FEMA US&R Task Forces:

- Are considered Federal assets under the Robert T. Stafford Disaster Relief and Emergency Assistance Act and other applicable authorities;
- Are staffed primarily by emergency services personnel who are trained and have experience in collapsed structure SAR operations and possess specialized expertise and equipment;
- Can be activated and deployed by FEMA to a disaster area to provide assistance in structural collapse rescue, or may be pre-positioned when a major disaster threatens a

community; and

- Will have all personnel and equipment at the embarkation point within six hours of activation so that it can be dispatched and enroute to the disaster location in a matter of hours.

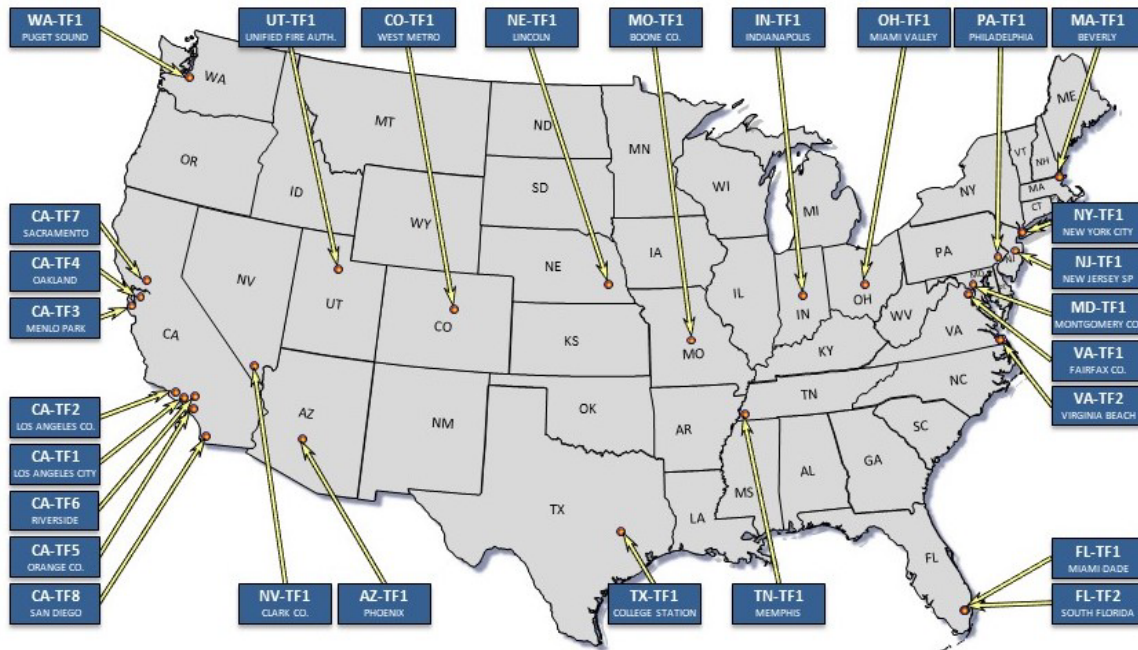


Figure 1-4: FEMA US&R Task Force Locations

Type I US&R Task Forces

A Type I Task Force is made up of 70 multi-faceted, cross-trained personnel who serve in six major functional areas. These include search, rescue, medical, hazardous materials, logistics, and planning; and are supported by canines.

A Task Force can conduct physical search and heavy rescue operations in damaged or collapsed reinforced concrete buildings. Each Task Force can be divided into two 35-member teams providing 24-hour search and rescue operations (See Figure 1-5). Self-sufficient for the initial 72 hours, the task forces are equipped with convoy vehicles to support over the road deployments and can be configured into Light Task Forces to support weather events such as hurricanes and tornadoes and other similar incidents.

FEMA US&R Task Forces (Type I)

- 70 personnel (+10 drivers/mechanics if transported by ground);
- Physical SAR operations;
- Emergency medical care for entrapped victims;
- Reconnaissance to assess damage to infrastructure;
- Hazardous materials surveys/shut off utilities to buildings;
- Structure/hazard evaluations of buildings; and
- HAZMAT detection, monitoring, decontamination capability

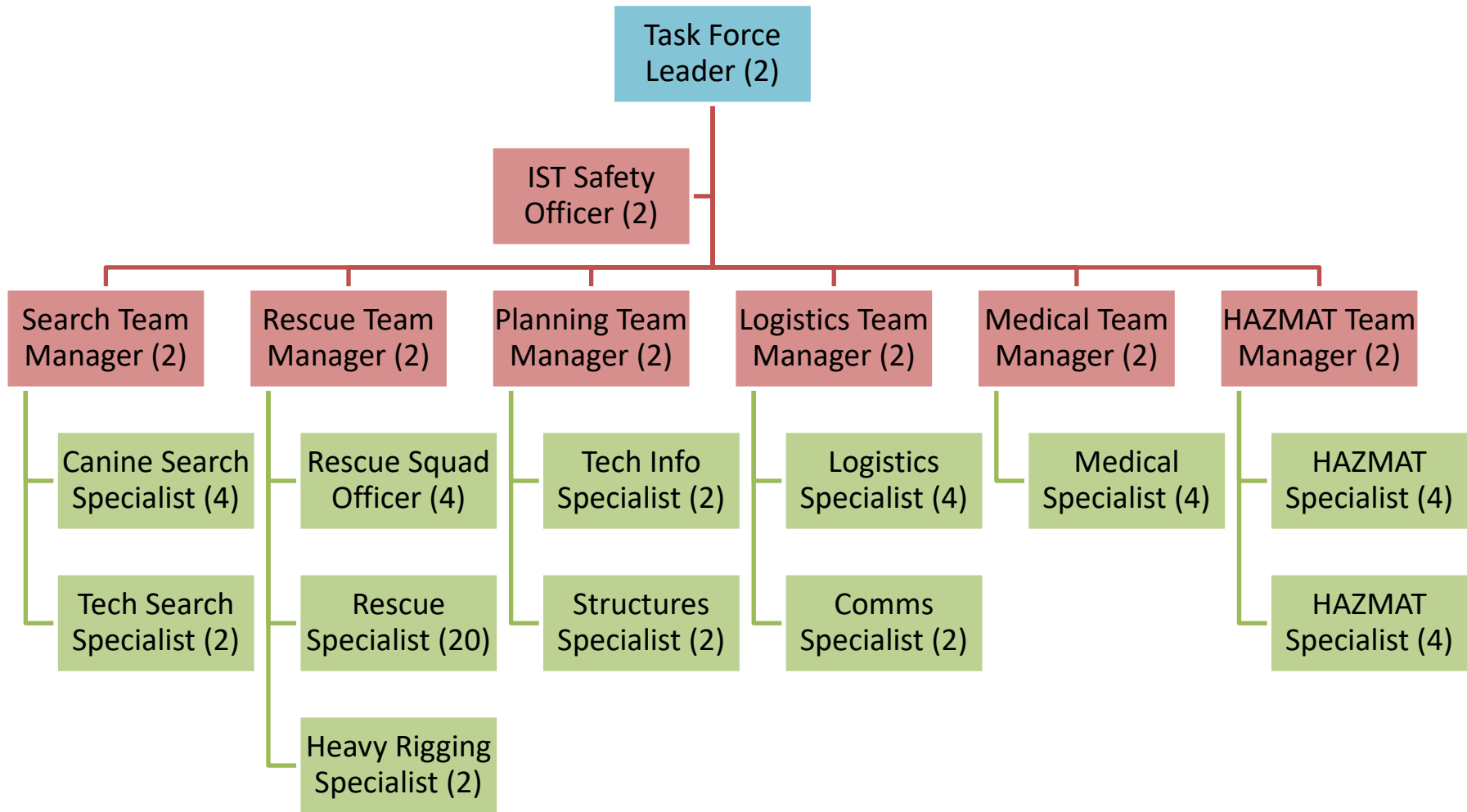


Figure 1-5: FEMA US&R Task Force – Type I

US&R Task Force Capabilities

FEMA's US&R task force capabilities include:

- Conduct physical SAR operations in damaged/collapsed structures;
- Provide reconnaissance to assess damage and needs, and to report results to appropriate officials;
- Render emergency medical care for trapped victims, US&R personnel and search canines;
- Survey and evaluate hazardous materials threats;
- Assess and shut off utilities to homes and other buildings;
- Operate in a known or suspected weapons-of-mass-destruction environment;
- Provide structural and hazard evaluations of buildings; and
- Stabilize damaged structures, including shoring and cribbing.

US&R Incident Support Team (IST)

FEMA US&R Incident Support Teams (ISTs) provide coordination and logistical support to US&R Task Forces during emergency operations. The initial deployment normally consists of an IST- Advance (IST-A) team, which can then be expanded as the incident response requires (See Figure 1-6 for the potential structure of an IST). The IST also conducts needs assessments and provides technical advice and assistance to State, Tribal, Territorial/Insular Area, and local government emergency managers.

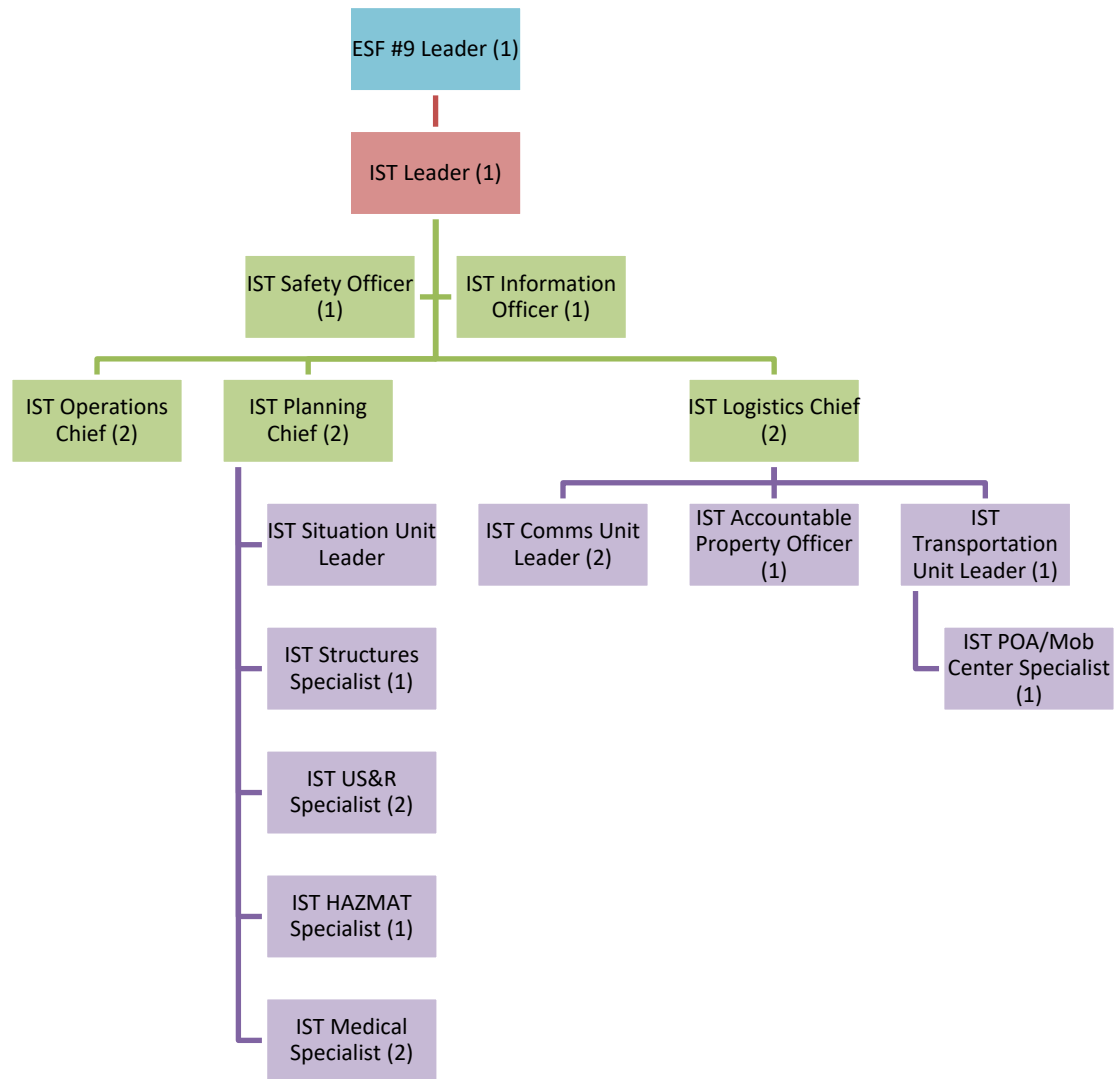


Figure 1-6: FEMA US&R Incident Support Team - Advance

Military Support to FEMA US&R

In a catastrophic incident, FEMA's 28 US&R Task Forces can be augmented by DoD military personnel to meet the high demand for timely, efficient, and effective structural collapse SAR capability.

(Note: See Section 1-7: Department of Defense (DoD), for further information on military support in the conduct of US&R operations.)

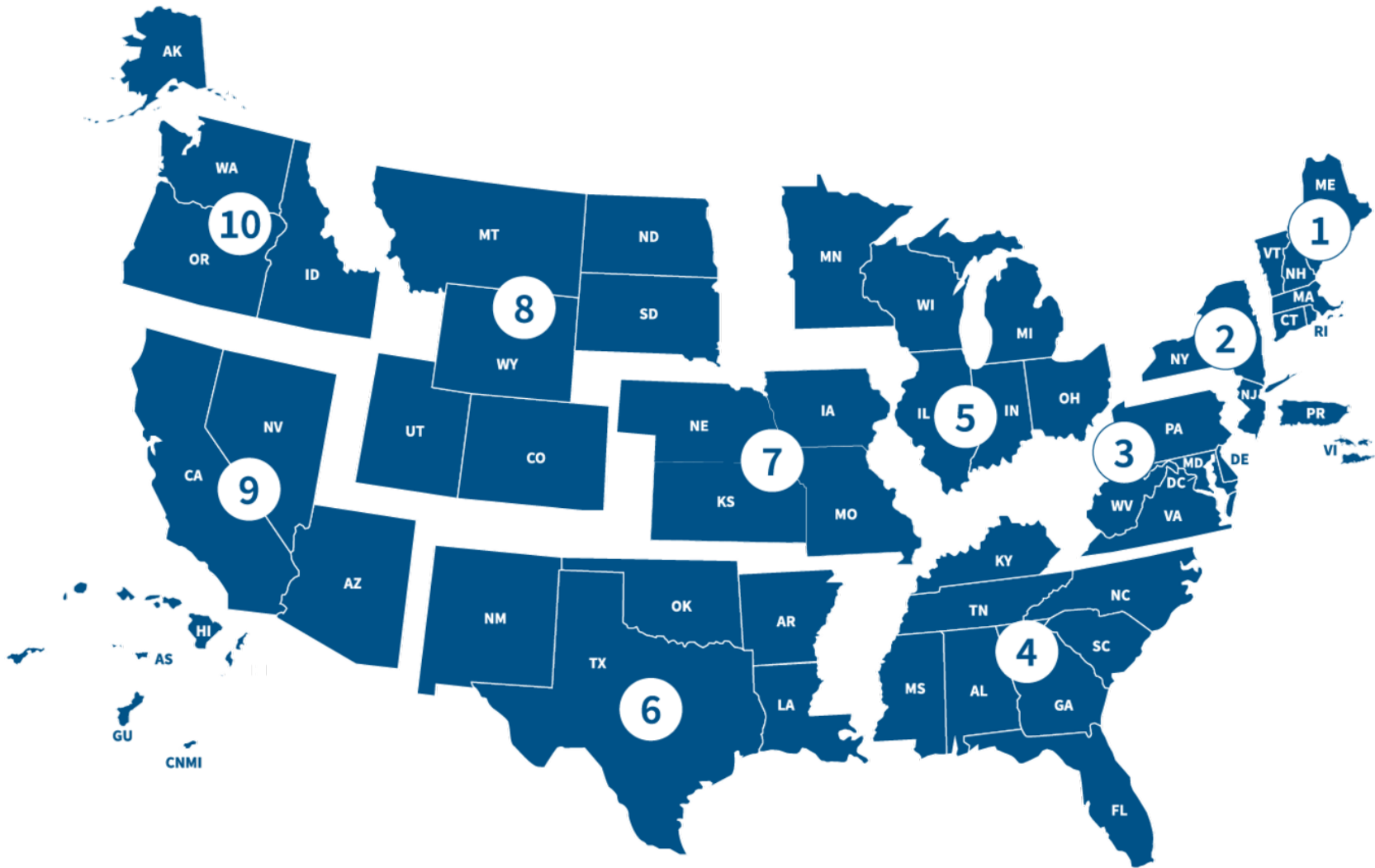


Figure 1-7: FEMA Regions

Section 1-7: Department of Defense (DoD)

DoD Support for Civil SAR

The Department of Defense (DoD) has significant capabilities that can support civil SAR operations. Whether responding to planned events or crisis incidents, SAR providers at all levels should consider requesting DoD capabilities as early as possible.

Under provisions of the NSP and existing Memoranda of Understanding (MOUs)/Memoranda of Agreement (MOAs), DoD Components maintain active, reserve, and other DoD SAR capabilities that can support civil authorities.

Federal military commanders and responsible DoD officials are also authorized by DoD policy to assist in saving lives, prevent human suffering, or mitigate great property damage under imminently serious conditions within the United States. This support is known as “Immediate Response Authority” (See DoD Directive 3025.18).

DoD resources for support to civil SAR are not limited to traditional SAR aviation platforms. CISAR operations may require requests for high water vehicles, swift water rescue operations, planners, and specially trained rescue personnel, as well as general purpose troops. For example, in the event of an overwhelming collapsed structure event, when requested, USNORTHCOM may provide military support to the FEMA US&R mission.

CISAR operations require a high degree of planning and cooperation to be successful. In accordance with the NSP and national response doctrine, DoD Components must provide support with a spirit of unity of effort and cooperation with their civil counterparts at all levels.

DoD Policy

Per DoD Instruction 3003.01 (26 September 2011, Incorporating Change 1, 12 May 2017), DoD will support domestic civil authorities by providing civil SAR services to the fullest extent practicable on a non-interference basis with primary military duties; such services are provided according to applicable national directives, plans, guidelines, and agreements and under the authority of and consistent with the NSP. For routine SAR, a DoD response to a request under the NSP is normally on a non-reimbursable basis. However, DoD capabilities provided under the NSP during the onset of a catastrophic incident may be reimbursed later in accordance with the Economy Act (Title 31 USC 1535–1536) or the Robert T. Stafford Act Disaster Relief and Emergency Assistance Act (Title 42 USC 5121–5206). In accordance with the NRF, and to ensure a fully coordinated and integrated DoD response, all requests for DoD support of CISAR operations should be submitted to the Secretary of Defense from either the FCO through the DCO at the JFO or from the FEMA NRCC.

As discussed in the NSP, DoD may also, if requested, support civil SAR operations anywhere in the world, consistent with its expertise, capabilities, and legal authority.

Immediate Response Authority

Federal military commanders, heads of DoD components, and/or responsible DoD civilian officials (hereafter referred to collectively as "DoD officials") have independent Immediate Response Authority that allows them to provide needed assistance after an emergency, under certain narrow circumstances.

In response to a request for assistance from a civil authority, under imminently serious conditions and if time does not permit approval from higher authority, DoD officials may provide an immediate response by temporarily employing the resources under their control (subject to any supplemental direction provided by higher headquarters) to save lives, prevent human suffering, or mitigate great property damage within the United States. DoD Directive 3025.18, "Defense Support of Civil Authorities (DSCA)," updated April 5, 2018, governs the use of this authority by DoD officials.

Numerous legal considerations apply to the use of Immediate Response Authority and in situations where DoD forces have been asked to provide support to civilian authorities, so DoD officials should consult with their legal advisor when providing such support or assistance.

Military Support to US&R

For a large-scale US&R event, FEMA may request military augmentation for its US&R Task Forces.

Developed in close coordination with FEMA, the DoD US&R concept of operations facilitates the augmentation of military forces with FEMA US&R Task Forces with specially trained search and extraction elements from the National Guard. National Guard CBRN Emergency Response Force Packages (CERFP) are the primary military force option for DoD's responsibility in providing military support to FEMA US&R Task Forces when requested by FEMA and approved by Secretary of Defense.

Additionally, general purpose military personnel may also augment FEMA US&R Task Forces in a non-technical support capacity after receiving FEMA training prior to employment at a disaster site (See Figure 1-8 for a support structure example).

DoD Responsibilities

SC duties as detailed in the NSP are separate and distinct from NRF ESF #9 OPA responsibilities. U.S. Northern Command is the identified SC for the aeronautical regions corresponding to the contiguous United States and Alaska SC duties are assigned to DoD and approved by the Deputy Secretary of Defense in the NSP.

**DoD and DOI / National Park Service
ESF #9 Primary Agencies — Land SAR**

Operational Overview: Land SAR includes operations that require aviation and ground forces to meet mission objectives other than maritime/coastal/waterborne (Primary Agency: Coast Guard) and structural collapse SAR operations (Primary Agency: FEMA).

DoD, through USNORTHCOM, will coordinate facilities, resources, and special capabilities that conduct and support air, land, and maritime SAR operations according to applicable directives, plans, guidelines, and agreements.

Per the NSP, within DoD, CDRUSNORTHCOM is designated as a Federal SC and provides, coordinates, and uses resources for the efficient organization and conduct of SAR services, including SAR operations within DoD's assigned SRRs and when requested, assist Federal, State, Tribal, Territorial/Insular Area, and local authorities.

Available DoD and Civilian SAR Assets

The U.S. Air Force Rescue Coordination Center (AFRCC) and the Alaska Rescue Coordination Center (AKRCC) maintain MOUs/MOAs with each State and has extensive resource files of available DoD and civilian SAR assets. At the State's request, the appropriate RCC coordinates arrangements for their use.

Civil authorities requiring an immediate response from DoD for civil SAR within the 48 contiguous states should contact the AFRCC at 1-800-851-3051, or the AKRCC at 1-800-420-7230 as soon a need is anticipated or identified.

Defense Support of Civil Authorities (DSCA)

DoD's primary mission is national defense. Because of this critical role, resources are normally committed to NRF-related operations only after approval by the Secretary of Defense (SECDEF) or at the direction of the President. DoD Support of Civil Authorities is referred to as DSCA. The relevant DoD directive regarding DSCA policy is DODI 3025.18, *Defense Support to Civil Authorities*.

Legal Restrictions

Some CISAR situations may involve the presence of military personnel supporting SAR on-scene when law enforcement operations may need to be carried out concurrently in the same location. The Posse Comitatus Act is a Federal criminal statute (18 USC 1385) that prohibits Title 10 forces of the DoD Armed Forces (Army, Air Force, Navy, Marine Corps, Space Force, and National Guard when called into Federal service) from exercising law enforcement, police, or peace officer powers that maintain "law and order" within the U.S., except where expressly authorized by the Constitution or Congress. The Posse Comitatus Act does not apply to the Coast Guard (14 USC §§ 102 & 522).

DoD Support Structure for CISAR

USNORTHCOM has command and control (C2) of assigned personnel and resources providing DSCA in their area of responsibility (AOR) and synchronizes such operations across the DoD. Additional forces can be made available, under the C2 of CDRUSNORTHCOM as authorized by Secretary of Defense order (this includes resources authorized under the DSCA execution order through which CDRUSNORTHCOM is the DoD synchronizer within the USNORTHCOM AOR). USNORTHCOM will designate a lead component for coordination of DSCA support to a Lead Federal Agency and impacted states. USNORTHCOM designated Air

DSCA Authorities

Nothing in the DSCA directive impairs or otherwise affects the authority of SECDEF over the DoD, including the chain-of-command for military forces from the President as Commander-in-Chief, to SECDEF, to the commander of military forces, or military C2 procedures. SECDEF shall provide military support to civil authorities for domestic incidents as directed by the President or when consistent with military readiness and appropriate under the circumstances and the law. SECDEF shall retain command of military forces providing civil support. SECDEF and the Secretary of Homeland Security shall establish relationships and mechanisms for cooperation and coordination between their two departments.

Homeland Security Presidential Directive 5 (HSPD-5), Paragraph 9

Forces Northern (AFNORTH/First Air Force) as the lead component for coordination of all DoD support to ESF #9.

USNORTHCOM Joint Personnel Recovery Center (JPRC). For ESF #9, JPRC personnel deploy as SAR planners in support of the Defense Coordinating Officer and normally embeds within a State's SAR Branch (see Figure 1-6-1) to assist in DoD planning and support to State SAR requirements.

USNORTHCOM J36 Personnel Recovery/Search and Rescue Branch. During ESF #9 events, the USNORTHCOM J36 PR/SAR Branch will deploy to represent DoD SAR equities at strategic SAR nodes to include but not limited to; the NRCC, the RRCC, and/or Federal Search and Rescue Coordination Group (FSARCG), as appropriate.

USNORTHCOM J36 Joint Enabling Capability (JEC). During ESF #9 events when a Dual Status Commander (DSC) is appointed, SAR subject matter experts (SMEs) will be deployed as part of the DSC's Title 10 JEC staff to help manage and provide command control of DoD SAR assets.

U.S. Indo-Pacific Command (USINDOPACOM). USINDOPACOM has C2 of assigned personnel and resources providing DSCA in their AOR. Additional forces can be made available, under the C2 of USINDOPACOM as authorized by Secretary of Defense order (includes resources authorized under the DSCA Execution Order through which CDRINDOPACOM is the DoD synchronizer within the USINDOPACOM AOR.)

Air Forces Northern (AFNORTH) Joint Force Air Component Commander (JFACC). Responsible for planning and coordinating joint air operations and tasking assigned joint air forces. As the lead DoD component commander for CISAR operations, JFACC is responsible for the coordination and synchronization of CISAR efforts into the state and territorial/insular schemes of maneuver.

Search and Rescue - Operations Coordination Element (SAR-OCE). After, or in anticipation of CISAR operations, AFNORTH, will activate and operate the SAR-OCE to plan, coordinate, and direct DoD CISAR operations within the disaster or an assigned Joint Operational Area (JOA). For CISAR operations in which DoD is the ESF #9 OPA, the SAR-OCE is the primary coordinating node for DoD Title 10 SAR assets. The SAR-OCE:

- Coordinates DoD SAR forces for CISAR operations based on the State, Tribe, Territory/Insular Area, or local SAR plans and requests;
- Handles CISAR reports, assessments, and situation reports;
- Provides SAR situational awareness vertically and laterally across DoD and interagency partners;
- Helps de-conflict demands for DoD SAR air assets;
- Facilitates coordination among DoD and other Federal, State, and local response activities; and
- Recommends use of SAR Coordinator authority, when appropriate, to save lives and

mitigate human suffering.

Air Force Rescue Coordination Center (AFRCC). For incidents in which DoD is the designated ESF #9 OPA, AFRCC will continue to handle routine SAR (non-maritime) outside the defined disaster or JOA.

Dual Status Commander (DSC). In anticipation of, or during an incident that may require a Federal and State unified response, a State may consent to use of a commissioned officer as a DSC serving on active duty and duty in, or with, the National Guard of a State to exercise command of both Armed Forces and the National Guard. A DSC is recommended by the State Adjutant General (TAG), requested by the State Governor and authorized by the Secretary of Defense. A DSC is a proven command organization that enables unity of effort, provides C2, integrated planning and response, and heightens the efficiency and effectiveness of all supporting military forces. By law, a DSC led Joint Task Force should be “the usual and customary C2 arrangement” when the Armed Forces and the National Guard are employed simultaneously in support of civil authorities in the United States (NDAA FY12 Public Law 112-81 – Dec 31, 2011).

Joint Task Force (JTF). Based on the complexity, type of incident, and the anticipated level of DoD resource involvement, USNORTHCOM or USINDOPACOM may designate a JTF to command military activities in support of DSCA incident objectives. DoD civil SAR forces will normally be coordinated by a JPRC liaison or SAR SME within the JTF to liaise DoD support with the respective SAR Branches of the Federal Joint Field Office (JFO) and/or the State Emergency Operations Centers (if established).

Defense Coordinating Officer (DCO). USNORTHCOM and USINDOPACOM use DCOs to coordinate with FEMA in their respective AORs. USNORTHCOM has permanently stationed DCOs in each of the 10 FEMA Regions. The DCO serves as DoD's single point of contact in a Joint Field Office for requesting DoD assistance.

Emergency Preparedness Liaison Officer (EPLO) Program. EPLOs are senior reserve component officers from each military service including the Coast Guard, operating under Title 10 USC authorities, who provide information on appropriate military assistance to other Federal Agencies and State governments, and help inform and coordinate these DoD capabilities with the DCO.

Senior Army Advisor, Army National Guard (SRAAG). An active duty senior Army officer detailed with the Army National Guard (ARNG) of each state and territory to include the District of Columbia who advise and assist the state's Army Reserve National Guard (ARNG) commanders concerning organization, operations, training, and readiness. A SRAAG acts as the principle active component contact for The Adjutant General (TAG) in each state and is an active member of the TAG's staff. SRAAGs are trained, qualified, and have served as the Title 10 Deputy to Dual Status Commanders.

National Guard (NG)

National Guard (NG) forces employed under State active duty or Title 32 status are under the C2 of the Governor of their respective State when providing support. Federal military forces, when requested and approved by the Secretary of Defense, will coordinate closely with National Guard forces to promote unity of effort.

In addition to their partnership with DoD in operating under a DSC, the National Guard; specifically the Search and Extraction elements (S/E) of the Homeland Response Force (HRF) and the CBRN Enhanced Response Force Packages (CERFP), are the primary military force option for DoD's responsibility (when requested by FEMA and approved by SECDEF) in providing military support to FEMA US&R Task Forces in response to a catastrophic, domestic incident.

National Guard Bureau National Guard Coordination Center (NGB-NGCC)

Phone: 703-607-8712 / 8713

Fax: 703-607-0040

DSN: 327-8712 / 8713

DSN Fax: 327-0040

Secure Fax: 703-607-8740

DSN Secure Fax: 327-8740

nbgjoccmgctr@ng.army.mil

Title 10 SAR Support

When requested by the State and approved by SECDEF, additional Title 10 forces are available for SAR operations. The SAR elements in the Defense CBRN Response Force (DCRF) and the Command and Control CBRN Response Enterprise (C2CRE) are trained to a high standard in order to be certified to operate independently at an incident site, or in support of the FEMA US&R Task Force under direction of the incident commander while operating under C2 of a DSC or Title 10 Commander. The DCRF and C2CRE SAR capability in the Initial Response Force are certified in Structural Collapse SAR at the Technician Level as defined by National Fire Protection Association (NFPA) 1670 standards. This definition incorporates technician-level capabilities for Rope Rescue, Confined Space SAR, Vehicle SAR, Trench and Excavation SAR, and Machinery SAR as well as awareness-level for Water SAR.

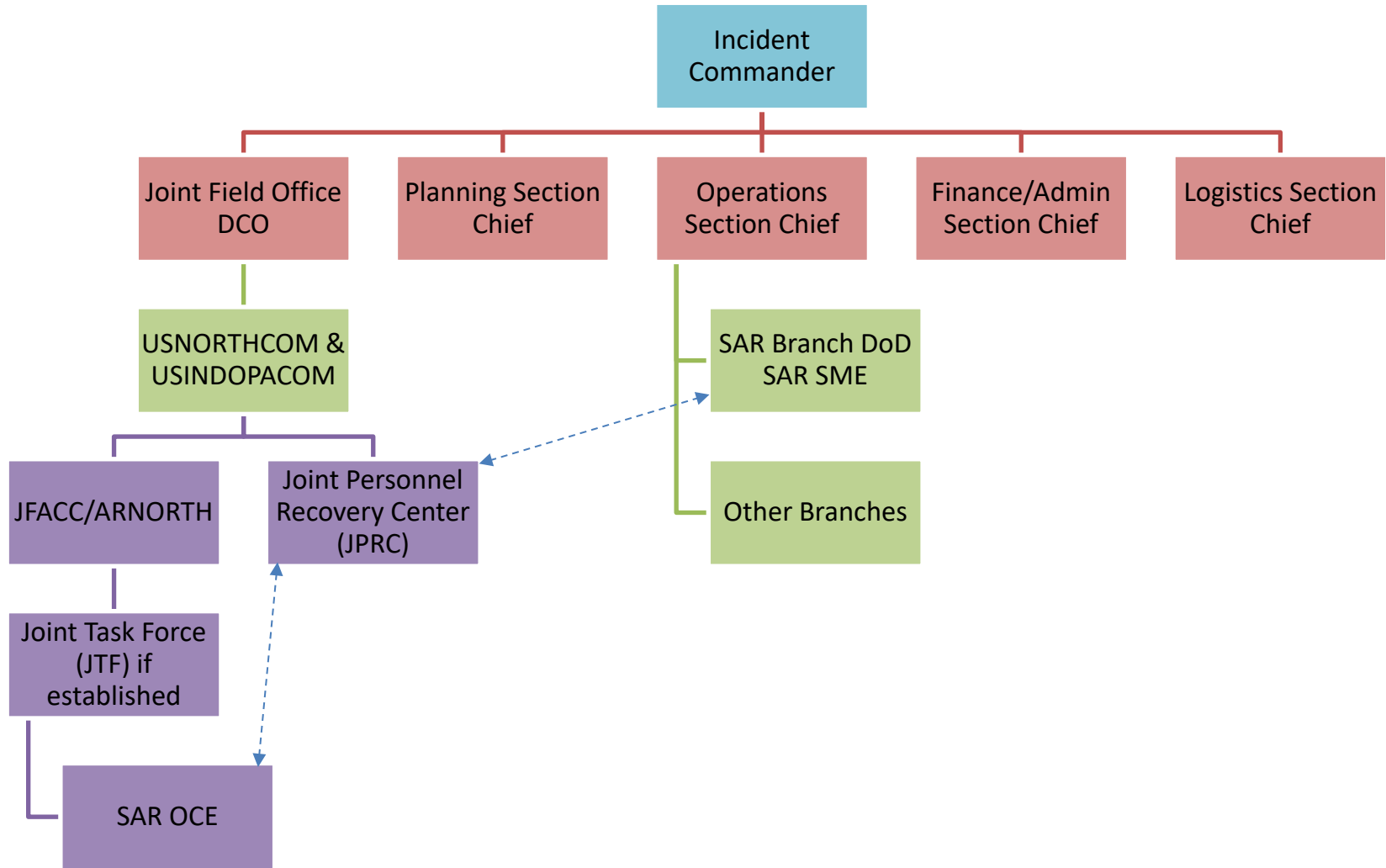


Figure 1-8: Simplified DoD Support Structure for Catastrophic Incident SAR

Section 1-8: United States Coast Guard (USCG)

USCG Authority for ESF #9 & CISAR

The USCG's statutory authority to conduct SAR missions is found in 14 USC 102, 521, and 701.

The USCG has many resources that may be immediately available to support civil SAR operations. Whether responding to notice or no-notice events, emergency managers should consider using these resources as early in the planning process as possible.

Routine USCG SAR Support

For routine SAR support, USCG assistance does not require coordination by DHS through ESF #9 Mission

Assignments (MA) and can be provided without a Presidential emergency or major disaster declaration. In routine SAR operations, the USCG provides SAR assistance to States, Tribes, Territories/Insular Areas, and local jurisdictions, consistent with their authorities.

In these routine types of SAR operations, the Coast Guard Addendum, NSS and NSP apply.

In CISAR operations, Coast Guard response systems shift to provide SAR resources through the Incident Command System (ICS) to ensure their most effective and safe use. In CISAR ICS operations, the SMC will normally be placed within the Incident Command, typically as the SAR Branch Director or SAR Group Supervisor in the Operations Section.

USCG CISAR response assets will most likely be coordinated through the IC in support of the

USCG Primary ESF #9 Agency for Maritime SAR

The USCG is the primary ESF #9 agency for maritime, coastal, and waterborne SAR, including natural and man-made disasters that primarily require DHS/USCG air, ship, boat, and response team operations.

In ESF #9 SAR operations, USCG responders assist and augment State, Tribal, Territorial/Insular Area, and local SAR capabilities in incidents requiring a coordinated Federal response. USCG SAR responders will coordinate SAR activities with other response agencies within the Incident Command.

In contrast, routine, immediate SAR operations (non- ESF #9) are conducted in accordance with the IAMSAR Manual, NSP, NSS, and Coast Guard Addendum which define SAR responsibilities and provide guidance to Federal Agencies with civil SAR mandates.

State, Tribe, Territory/Insular Area, or other Federal lead as dictated by ESF #9.

(Note: In order to support a multi-agency CISAR effort, Coast Guard responders must be NIMS/ICS qualified to ensure effective integration with other response organizations.)

CISAR Coordination

Successful response requires unity of effort, which respects the chain of command of each participating organization while harnessing seamless coordination across jurisdictions in support of common lifesaving objectives.

This kind of support may well require USCG personnel to liaise/interact at the Federal, State, Tribal, Territorial/Insular Area, or local Emergency Operations Centers (EOC). The EOC will most likely be staffed by personnel representing multiple Federal, State, Tribal, Territorial/Insular Area, or local emergency response agencies, the private sector, and nongovernmental organizations.

USCG: ESF #9 Overall Primary Agency (OPA, or PA)

When a disaster occurs and ESF #9 Federal SAR resources are requested, the USCG will likely be designated the OPA (PA) if the disaster is maritime/coastal/waterborne (e.g., flooding) event. For these types of disasters, either Commander, Pacific Area (CPA) or Commander, Atlantic Area (CAA) will be the OPA for the duration of the ESF #9 assistance.

OPA responsibilities include the planning, coordination, and conduct of ESF #9 Federal Agency assistance in support of the State in catastrophic incidents such as hurricane response, disaster flooding, etc. ESF #9 OPA responsibilities are conducted at all operational levels where there is a collaborative presence of ESF #9 Primary and/or Supporting Agencies.

(Note: See Section 1-3: Emergency Support Function #9 (Search and Rescue) for further guidance on ESF #9 OPA responsibilities.)

USCG: Routine SAR vs. CISAR

The USCG may support CISAR operations with USCG assets that are organic to the region in which the catastrophic incident occurred. Other assets may also be deployed from other geographic locations.

In addition, the USCG will continue to respond to other, routine SAR operations within the in waters under the jurisdiction of the U.S. As such, this may require the USCG to retain SMC of USCG assets during these other SAR operations and may only be able to accept CISAR mission assignments on a not-to-interfere basis.

As CISAR operations are conducted, it is critical the Incident Command fully understands the USCG's continued responsibility to conduct other SAR operations in addition to supporting ongoing CISAR operations.

During these events, USCG personnel will be responsible for assisting in SAR planning and coordination efforts with the affected State(s) and other Federal Agencies. These coordination activities may include providing USCG liaisons at the affected State's EOC and ESF #9 SAR coordination center(s), FEMA's RRCC/JFO, and the FEMA Headquarters NRCC.

Designation as OPA does not necessarily mean the USCG will be required to provide Federal ESF #9 SAR assets in support of the State. DoD, NG, NPS, FEMA US&R, and others also have SAR assets available to meet a State's ESF #9 request. For example, if a State requests the USCG provide two helicopters for multi-day SAR standby for *potential* flooding, then the USCG, with a daily SAR response mission requirement, may not necessarily be the best resource to meet the State's ESF #9 SAR requirement.

This is why it is vital for the USCG, as ESF #9 OPA, request the State provide their SAR requirement and not request a specific type of asset (e.g., helicopters, personnel, etc.). With the State's request, the USCG as ESF #9 OPA, in consultation with other ESF #9 agencies, can determine the best Federal Agency(s) and asset types to meet the State's requirement.

Over the past several years, experience has shown early and continuous interagency planning and coordination between local, Tribal, Territorial/Insular Area, State and Federal SAR planners will ensure successful coordination and use of ESF #9 SAR assets during complex, multi-agency SAR operations. If the disaster is a "notice" event and provides the opportunity for early interagency planning and coordination (e.g., hurricane, flooding, etc.), then the USCG, if

assigned as OPA, is responsible for coordinating Federal support and assisting the State in planning and coordinating the disaster response.

USCG Districts and FEMA Regions

Figure 1-9 provides an overview of USCG Districts and FEMA Regions.

In many instances, CISAR operations may very well overlap other USCG Districts as well as multiple FEMA Regions. When the USCG assumes ESF #9 OPA for maritime/coastal/waterborne SAR operations, the challenge will be coordinating Federal SAR resources in support of several States and coordinating with other FEMA Regions, USCG Districts, and CDRUSNORTHCOM or CDRUSINDOPACOM as needed.



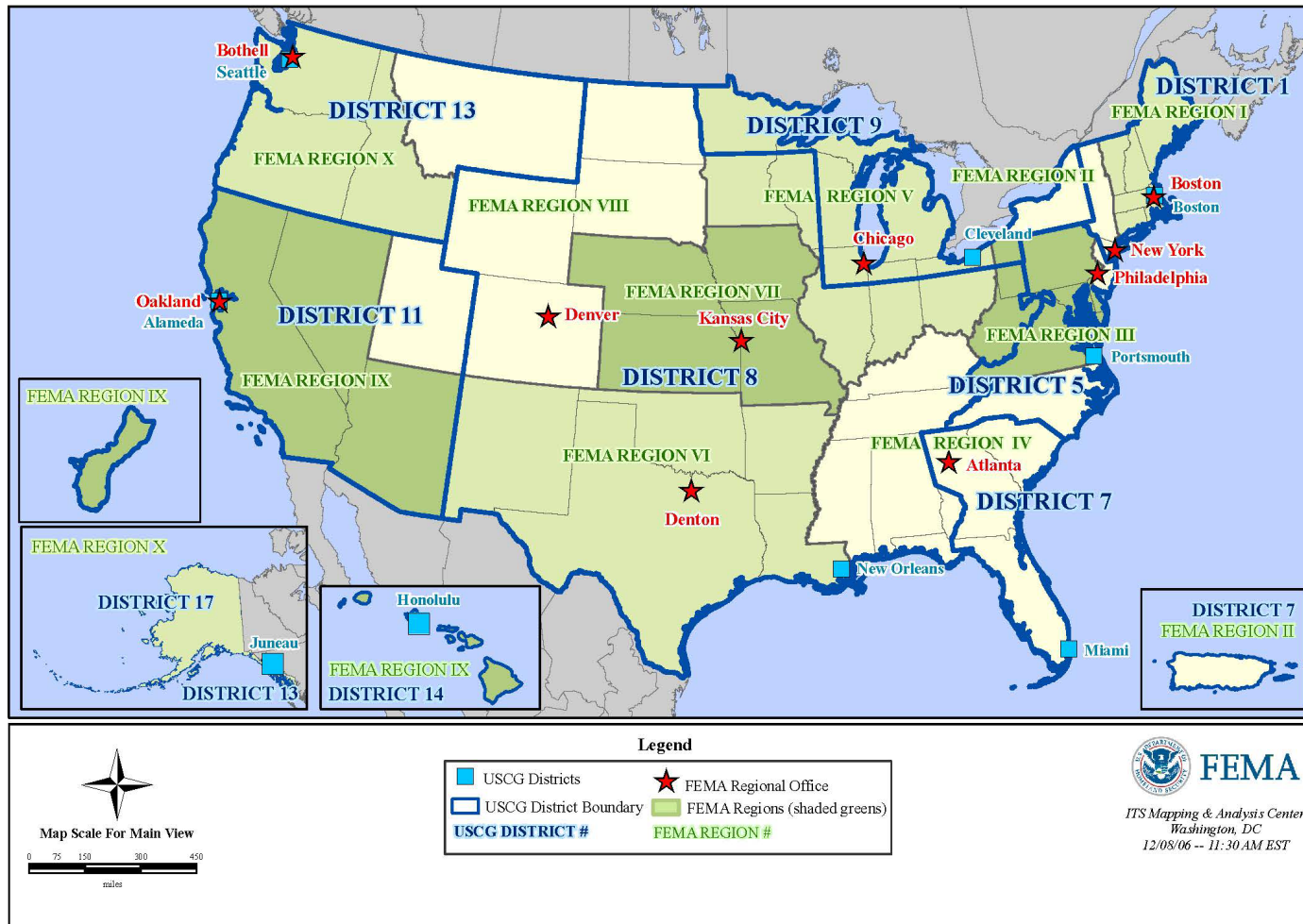


Figure 1-9: USCG Districts and FEMA Regions

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Section 1-9: National Park Service (NPS)

NPS Authority

The National Park Service (NPS) is an agency within the Department of the Interior (DOI). The NPS traditionally provides visitor protection services - including SAR - within areas of the National Park System. The provision of these services is in accordance with the Organic Act of August 25, 1916, as amended 54 USC 1 (et seq.). This Act allows for the rendering of emergency rescue and law enforcement for related purposes outside of the National Park System.

NPS Regional Offices

Each of the seven regional NPS offices coordinates SAR resources and training through the NPS Regional SAR Coordinator. This Coordinator will facilitate the management of SAR resources and maintains equipment and supplies that can be available during CISAR operations.

ESF #9 Land SAR Overall Primary Agency (OPA)

Under ESF #9, OPA for Land SAR is either NPS or DoD/NORTHCOM, depending on the incident-specific circumstances. FEMA is the determining authority for who will hold OPA authority for Land SAR in any given CISAR situation.

NPS Land SAR Teams provide personnel, equipment, and supplies for conducting operations during a CISAR event. These teams are specially trained to operate in various roles including ground search, small boat operations, swift water rescue, helo-aquatic rescue, and other technical rescue disciplines.

NPS Small Boat Task Forces (SBTF) provide personnel and shallow draft vessels for use in situations where rescue and evacuation are necessary.

NPS maintains preconfigured teams that include personnel and equipment from the NPS, the U.S. Fish and Wildlife Service, U.S. Geological Survey, Bureau of Indian Affairs, and other DOI components in planning for ESF #9.

**National Park Service Emergency Incident
Coordination Center (EICC)**

540-999-3422

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Section 1-10: States

States

“The Federal Government recognizes the roles and responsibilities of State and local authorities in domestic incident management. Initial responsibility for managing domestic incidents generally falls on State and local authorities. The Federal Government will assist State and local authorities when their resources are overwhelmed, or when Federal interests are involved. The Secretary [of Homeland Security] will coordinate with State and local governments to ensure adequate planning, equipment, training, and exercise activities. The Secretary [of Homeland Security] will also provide assistance to State and local governments to develop all-hazards plans and capabilities, including those of greatest importance to the security of the United States, and will ensure that State, local, and Federal plans are compatible.”

Homeland Security Presidential Directive 5 (HSPD-6), Paragraph 6

Key State-level SAR areas of impact and considerations may include:

- State Sovereignty;
- State SAR Coordinator(s) / State SMC(s);
- State CISAR Mission Coordination Center(s); and
- State CISAR plan and out-of-area resource enabling functions.

And support to:

- State SMC (State and Federal SAR resources and CISAR planners);
- Capability gap analysis, resource requests and processes (NSP/RCC, IRA, MA);
- Span of Control (SAR support to regional operations (All-Hazards Incident Management Team, Incident Commanders));
- Resource brokering (interstate and intrastate SAR resources and enabling functions);
- Training and exercises;
- Balance of multi-jurisdictional issues; and
- SAR Suspense and Demobilization criteria.

State SAR Coordinator(s)

The State SC fills a unique role in the National SAR system by supporting local jurisdictions with training and mission response for routine SAR operations, and in most States serves as the State-to-Federal ESF #9 interface during catastrophic or declared events. It is important to note, that not all States have a designated State SC; State SAR responsibilities may be divided among two or more State agencies or ESFs with separate SAR disciplines and missions (i.e., Fire Rescue/US&R, and Wide-Area/Lost Persons).

For Federal authorities, it should be emphasized that by written SAR agreement or by appropriate request, the State/local SCs are the supported entity for SAR operations conducted within the respective jurisdictions(s); from routine through CISAR. During a catastrophic incident, a State may request assistance from multiple neighboring State and Federal agencies. These resources coordinate operations with the State SC or designated State SMC in accordance with State operational guidance.

Providing and Requesting Assistance

When requested, the State assists local governments if requested. States may have significant resources of their own that include emergency management and homeland security agencies, State Police, health agencies, Fire/Rescue/US&R County SAR services, transportation agencies, incident management teams, specialized teams, and NG reserves.

If additional resources are required, States may request assistance from other States through interstate mutual aid and assistance agreements such as the Emergency Management Assistance Compact (EMAC).

If an incident is beyond State, Tribal, Territorial/Insular Area, and local capabilities, the Governor or tribal executive can seek Federal assistance. The responsible authorities will collaborate with the impacted communities and the Federal Government to provide the assistance requested.

SAR Agreements and Plans

Most States have signed SAR agreements and/or plans with the Federal SCs that provide SAR services support to a requesting State SAR AHJ. A State request for SAR services may be made to any nationally recognized RCC (USCG or DoD). For example, the Air Force, via the AFRCC, has an MOA with each Governor and MOUs with many State authorities responsible for SAR. In addition to the MOA and MOUs written primarily to enable routine SAR assistance, States are highly encouraged to develop comprehensive CISAR plans for incidents that may require a unified State and Federal response. State SAR Plans are most effective when developed in cooperation, with collaborative planning assistance from Federal SAR and SAR enabling agencies.

In addition to State incident requests for SAR resource facilities, a State request for assistance may also include Federal SAR planners to assist State SMC(s) with collaborative SAR planning and the integration of federal SAR resources into the State's CISAR plan and the SAR action planning process.

State CISAR Plans

A CISAR plan details the supported organization, provides operating guidance, and defines the roles and responsibilities for SAR agencies and resources operating within a State in the aftermath of a catastrophic incident. State CISAR Plan development assistance can be provided by federal CISAR planners.

A comprehensive CISAR plan emphasizes the critical need to coordinate and manage the large numbers of Federal, State, and local resources that may be operating during a unified SAR response. SAR mission coordination can be particularly problematic when large numbers of State requested Emergency Management Assistance Compact (EMAC), federal and other out-of-area SAR resources arrive and personnel are unfamiliar with the operating area and essential mission enabling information. In prior catastrophic incidents, it has taken several days to efficiently employ all available resources.

Operational guidance and a thorough account of State SAR coordination and State SAR Plans are fully described and illustrated within the National SAR Supplement (NSS) to the IAMSAR.

Appendix D of the NSS provides an organizational outline for State SAR/CISAR Plan development.

The principal intent of all State SAR plans is to enable fundamental SAR mission coordination among multiple agencies, swift integration of out-of-area resources, attain the most efficient and effective use of all available resources and achieve operational synchronization and unity of effort.

Training and Exercises

SAR and SAR enabling agencies maintain operational proficiency of their assigned responsibilities through organic training programs. CISAR operations, when conducted, are executed by multiple agencies with similar mission capabilities operating within the same disaster area. Such operations can be quite challenging and pose a significant safety concern. State and federal agencies should make every effort to maximize joint training opportunities to improve synchronization of operations and enhance safety. Joint training opportunities should not be limited to less than frequent State, National Guard, or Federal programmed exercises.

Periodically, state, and Federal agencies exercise CISAR plans within their agency and/or in

conjunction with, or in support of other agencies. Exercises can include multi-agency Tabletops (TTX), Command Post / Virtual (CPX) or Field Training (FTX) designs. Post-exercise debriefings and After Action Reviews (AAR) are used to identify areas of improvement and corrections actions to both State and Federal supported and supporting CISAR plans.

Emergency Management Assistance Compact (EMAC)

EMAC is administered by the National Emergency Management Association, which provides form and structure to the interstate mutual aid and assistance process. This All-Hazards National Mutual Aid System was ratified by the U.S. Congress (P.L. 104-321) and is law in all 50 states and the Territories/Insular Areas. It currently does not apply to Tribal Nations.

Through EMAC, States can share resources from all disciplines, protect personnel who deploy, and be reimbursed for mission-related costs (details of this can be found in the thirteen articles of the Compact). This is accomplished through Mission Ready Packages (MRP) that contain details about the resource and a breakdown of the personnel, equipment, travel (lodging, meals, etc.) commodities and other items along with their associated costs.

The Mutual Aid Support System (MASS) is a GIS-based inventory of MRPs. Resource providers can develop and maintain MRPs in MASS and State EMAC Coordinators can use the MRP across all EMACs applications from the EMAC Operations System to the resource planner.

Most CISAR operations will most likely involve NG forces. NG forces deployed through EMAC typically will remain under the control of their respective State.

EMAC assets will typically be under the control of the State SAR Coordinator and/or the local AHJ and should mirror the NIMS typing and operate as such to insure the requesting State is receiving the capability needed.

Disaster Declarations

The Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 USC 5121- 5207 (“Stafford Act”) states “All requests for a declaration by the President that a major disaster exists shall be made by the governor of the affected state.”

Preliminary Disaster Assessment (PDA)

The governor’s request is made through the applicable FEMA Regional Office. State and Federal officials conduct a joint Federal, State, and local Preliminary Damage Assessment (PDA) to determine the extent of the disaster (or impending disaster) and its impact on individuals and public facilities. This information is included in the governor’s request to show that the disaster is, or is forecasted to be, of such severity and magnitude that the effective response is beyond the capabilities of the State, Tribal, Territorial/Insular Area, and local governments and supplemental Federal assistance is necessary. Normally, the PDA is completed prior to the submission of the

governor's request. However, when an obviously severe or catastrophic event is anticipated or occurs, the State Governor's request may be submitted prior to the PDA.

State Resources Overwhelmed

As part of the request, the Governor must take appropriate action under State law and direct execution of the State's emergency plan. The Governor shall furnish information on the nature and amount of State, Tribal, Territorial/Insular Area, and local resources that have been or will be committed to alleviating the results of the disaster, provide an estimate of the amount and severity of damage and the impact on the private and public sectors, and provide an estimate of the type and amount of assistance needed under the Stafford Act.

In addition, the Governor must certify that, for the current, or impending disaster, State, Tribal, Territorial/Insular Area, and local government obligations and expenditures (of which State commitments must be a significant proportion) will comply with all applicable cost-sharing requirements.

Disaster Declaration Types

There are two types of disaster declarations provided for in the Stafford Act: Emergency Declarations and Major Disaster Declarations (Table 1-7: Types of Disaster Declarations). Both declaration types authorize the President to provide supplemental Federal disaster assistance.

Table 1-7: Types of Disaster Declarations

Types of Declarations	
Emergency Declaration	<p>Declared for any occasion or instance when the President determines Federal assistance is required.</p> <p>Supplement State, Tribal, Territorial/Insular Area, and local efforts in providing emergency services, such as the protection of lives, property, public health, and safety, or to lessen or avert the threat of a catastrophe in any part of the United States.</p> <p>The total amount of assistance provided for a single emergency may not exceed \$5 million. If this amount is exceeded, the President shall report to Congress.</p>
Major Declaration	<p>The President can declare a Major Disaster Declaration for any natural event, including any hurricane, tornado, high water, wind-driven water, tidal wave, tsunami, earthquake, volcanic eruption, landslide, mudslide, snowstorm, or drought, or, regardless of cause, fire, flood, or explosion, that the President believes has caused damage of such severity that it is beyond the combined capabilities of State, Tribal, Territorial/Insular Area, and local governments to respond.</p> <p>A major disaster declaration provides a wide range of federal assistance</p>

	programs for individuals and public infrastructure, including funds for both emergency and permanent work.
--	--

Not all programs, however, are activated for every disaster. The determination of which programs are authorized is based on the types of assistance specified in the governor's request and on the needs identified during joint PDA and any subsequent PDAs.

President-Directed Emergency Assistance

The President may direct emergency assistance without a Governor's request if an incident occurs that involves a subject area exclusively or preeminently the responsibility of the U.S. The President will consult the Governor of any affected State, if practicable.

In addition, FEMA may provide accelerated Federal assistance and support where necessary to save lives, prevent human suffering, or mitigate severe damage, even in the absence of a specific request. In these instances, the Governor of the affected State will be consulted if practicable, but this consultation shall not delay or impede the provision of such rapid assistance.

Section 1-11: Tribes

The U.S. has a unique legal and political relationship with federally recognized Tribal Nations, established through and confirmed by the U.S. Constitution, treaties, statutes, executive orders, and judicial decisions. Federal departments and agencies are charged with engaging in regular and meaningful consultation and collaboration with Tribal government officials in the development of Federal policies that have Tribal implications and are responsible for strengthening the government-to-government relationship between the U.S. and Tribal Nations.

This coordination and cooperation extend to the conduct of CISAR operations during a disaster response under the Stafford Act.

The Sandy Recovery Improvement Act of 2013 included a provision amending the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act) to provide Tribal Nations the option to seek Stafford Act assistance independent of a State should they choose. Tribal governments may:

- Request Stafford Act declarations directly from the President;
- Seek assistance as either subrecipients or recipients underneath a State declaration; or
- Seek assistance in any combination of these options, provided there is no duplication of benefits.

In 2017, FEMA published the Tribal Declarations Pilot Guidance to clarify tribal declaration policy and the options tribal governments have to seek assistance. The [Tribal Relations Support Annex](#) to the National Response Framework provides more detail.

Tribal Overview

The following information is provided to help CISAR planners and responders understand the status and background of Tribal Nations.

- There are currently 574 federally recognized Indian Tribes;
- The U.S. recognizes Tribal Nations as sovereign nations, which possess nationhood status, and retain inherent powers of self-government and self-determination;
- The relationship between federally-recognized Indian Tribes and the U.S. is one between sovereigns (i.e., between a government and a government), a “government-to-government” principle that has helped shape relations between the Federal Government and Tribal Nations;
- Tribes possess the right to form their own governments, make and enforce laws (both

civil and criminal), establish, and determine membership (e.g., tribal citizenship), license and regulate activities within their jurisdiction; and

- The Tribal Chief Executive:
 - Depending on the tribal nation, may be called the President, Governor, Tribal Chief Executive, or Tribal Chief or many other honorific titles; and
 - May have the authority to suspend or initiate Tribal laws and regulations to ensure safety and security of Tribal members.

Tribal Coordinating Officer

A Tribe may appoint a representative to serve as a Tribal Coordinating Officer to coordinate disaster assistance efforts with Federal and State partners. The specific roles and scope of responsibilities of a Tribal Coordinating Officer may vary between tribes.

Tribal Expectations of Federal Responders

- The organizing Federal entity shall speak with the Tribal Chief Executive or their authorized representative and receive permission to conduct search and rescue operations in coordination with and the approval of the tribal government;
- CISAR planners and responders should discuss any cultural or historical considerations before initiating operations, including significant cultural and religious areas, items, and artifacts that should not be entered or moved without explicit permission;
- Death of a Tribal member may be treated differently than protocols found in non-Tribal populations and are culturally specific. Many times, these are not shared with those outside of the community; and
- Whenever possible, and in close coordination with Tribal Government Officials, it is recommended that Tribal members be utilized as guides and advisors during the conduct of operations on or near tribal lands Tribal resources should be integrated to ensure cultural and other considerations such as safety, communication, and deconfliction of ongoing tribal efforts which are often conducted in ad-hoc method at the band, community, or tribal level.

Section 1-12: U.S. Territories/Insular Areas, Commonwealths, and Compact Nations

Territories/Insular Areas are one of the four types of political division of the U.S., overseen directly by the Federal Government and not any part of a U.S. State. Territories/Insular Areas can be classified by whether they are incorporated (part of the U.S. proper) and whether they have an organized government (through an Organic Act passed by the U.S. Congress), or a territorial constitution and functioning legislature.

Under the Stafford Act, the following five U.S. Territories can receive disaster assistance and are included in the definition of a “State:”

- Puerto Rico;
- U.S. Virgin Islands (USVI);
- Territory of Guam;
- Territory of American Samoa; and
- Commonwealth of the Northern Mariana Islands (CNMI).

Additionally, Stafford Act assistance is available to two sovereign nations under the compact of free association with the U.S.:

- Federated States of Micronesia (FSM); and the
- Republic of the Marshall Islands (RMI).

Table 1-8: U.S. Territories, Insular Areas, and Commonwealths provides a general overview of the U.S. Territories supported by the Stafford Act.

Table 1-8: U.S. Territories, Insular Areas, and Commonwealths

U.S. Territories, Insular Areas, and Commonwealths				
Stafford Act Support Location	Capital	Total Area (Square Miles)	Population	FEMA Region
Puerto Rico ¹	San Juan	3,424	3,193,694	II
U.S. Virgin Islands ²	Charlotte Amalie	737	105,870	II
Territory of Guam	Agana	210	168,801	IX
American Samoa	Pago Pago	87	46,366	IX
Northern Mariana Islands	Saipan	179	51,659	IX
Federated States of Micronesia	Palikir	271	101,675	USAID ³
Marshall Islands	Majuro	70	78,831	USAID

CISAR Challenges

CISAR responders will have significant challenges when deploying to disaster response operations in the U.S. Territories/Insular Areas and Commonwealths.

Pacific Ocean

In FSM and RMI, the great distances, limited airport facilities, low elevation of many of the populated islands and limited SAR resources can cause significant challenges in conducting disaster CISAR operations.

FSM and RMI are both at risk for typhoons, earthquakes, and tsunamis. While there are USCG and DoD resources in Guam, as well as NPS and other Federal resources in the other Territories/Insular Areas, any organic response to a disaster will likely be very limited.

For operations in the Pacific U.S. Territories/Insular Areas, CISAR responders should have the appropriate U.S. passport.

Atlantic Ocean

¹ Puerto Rico population estimated by U.S. Census as of 01 Jul 2019.

² U.S. Virgin Islands, Guam, American Samoa, Mariana Islands, Micronesia, and Marshall Islands population and area estimated by Central Intelligence Agency, 2021 World Factbook. Area figures represent total land + water and have been converted from the source's metric measurements and rounded to the nearest whole number.

³ Micronesia and Marshall Islands USAID: under the service agreements of the amended Compact of Free Association with the Federated States of Micronesia and Marshall Islands, the U.S. Agency for International Development (USAID) is responsible for coordinating disaster response.

Puerto Rico and USVI have more robust, organic SAR capabilities with USCG, NPS, and National Guard resources available on both islands.

As in the Pacific Ocean, Puerto Rico and USVI are also at risk for major disasters caused by hurricanes, earthquakes, and tsunamis.

Territory of Puerto Rico

Puerto Rico is an island situated between the Caribbean Sea and the Atlantic Ocean, just east of the Dominican Republic. Puerto Rico is an island situated between the Caribbean Sea and the Atlantic Ocean, just east of the Dominican Republic. San Juan, the capital, is located on the northeastern shore of the main island. The Commonwealth also holds 3 small islands: Vieques and Culebra to the east, and Mona to the west. San Juan's location makes it one of the Caribbean Sea's most valuable ports. The Mona Passage, off Puerto Rico's west shore, is also a crucial shipping route to the Panama Canal (Figure 1-10: Puerto Rico).

Puerto Rico is an organized, unincorporated U.S. Territory with commonwealth status. Policy relations between Puerto Rico and the U.S. are conducted under the jurisdiction of the Office of the President.



Figure 1-10: Puerto Rico

Commonwealth of the U.S. Virgin Islands (USVI)

USVI is an organized, unincorporated U.S. Territory located immediately east of Puerto Rico (Figure 1-11: U.S. Virgin Islands; Figure 1-12: St. Thomas and St. John, U.S. Virgin Islands; and Figure 1-13: St. Croix, U.S. Virgin Islands). Although more than 50 separate islands and cays constitute this westernmost of the Lesser Antilles, only three have a size and population of any significance: St. Thomas, St. Croix, and St. John. Almost all the other islets are both uninhabited and uninhabitable. Most of the population is shared equally by St. Croix and St. Thomas, although St. Croix is considerably larger in area. The capital is in Charlotte Amalie on St. Thomas.



Figure 1-11: U.S. Virgin Islands

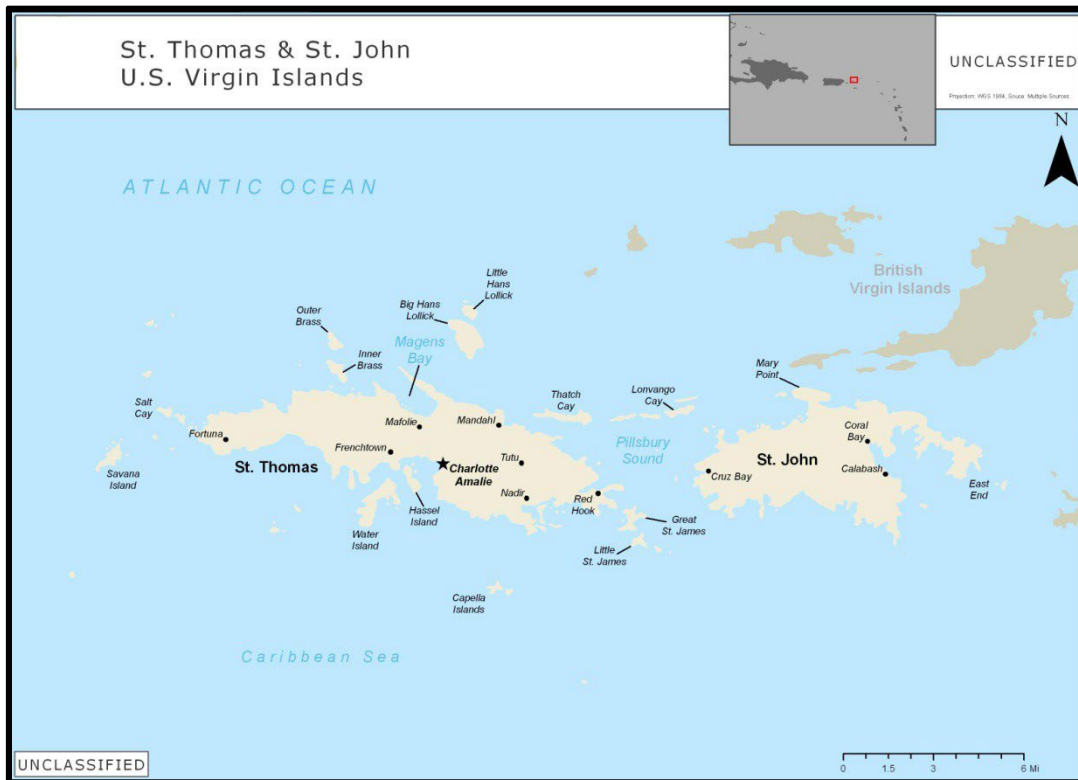


Figure 1-12: St. Thomas and St. John, U.S. Virgin Islands



Figure 1-13: St. Croix, U.S. Virgin Islands

Territory of Guam

Guam is an organized, unincorporated U.S. Territory administered by the Office of Insular Affairs, DOI. Guam is located 6,000 miles west of San Francisco and 3,700 miles west-southwest of Honolulu, Hawaii (Figure 1-14: Territory of Guam). Guam is the largest and southernmost island in the Mariana Islands archipelago.

Guam's population is approximately 180,000, of which 24,000 are U.S. military related.



Figure 1-14: Territory of Guam

Territory of American Samoa

American Samoa is an unincorporated unorganized U.S. Territory administered by the Office of Insular Affairs, DOI. It consists principally of five volcanic islands and two coral atolls. American Samoa is located approximately 2,300 miles southwest of Hawaii (about halfway between Hawaii and New Zealand). The largest and most populated island is Tutuila, which has

the capital city (Pago Pago).

In addition to Tutuila, the principal islands are Aunu'u and the Manu'a islands (a cluster of three islands), Ta'u, Ofu, and Olosega, located approximately 65 miles east of Tutuila.

Swains Island, a small island with a population of less than 25 and Rose Atoll, an uninhabited atoll approximately 120 miles east of Tutuila, make up the remainder of the Territory (Figure 1-15: Territory of American Samoa).

95 percent of the population lives on Tutuila.

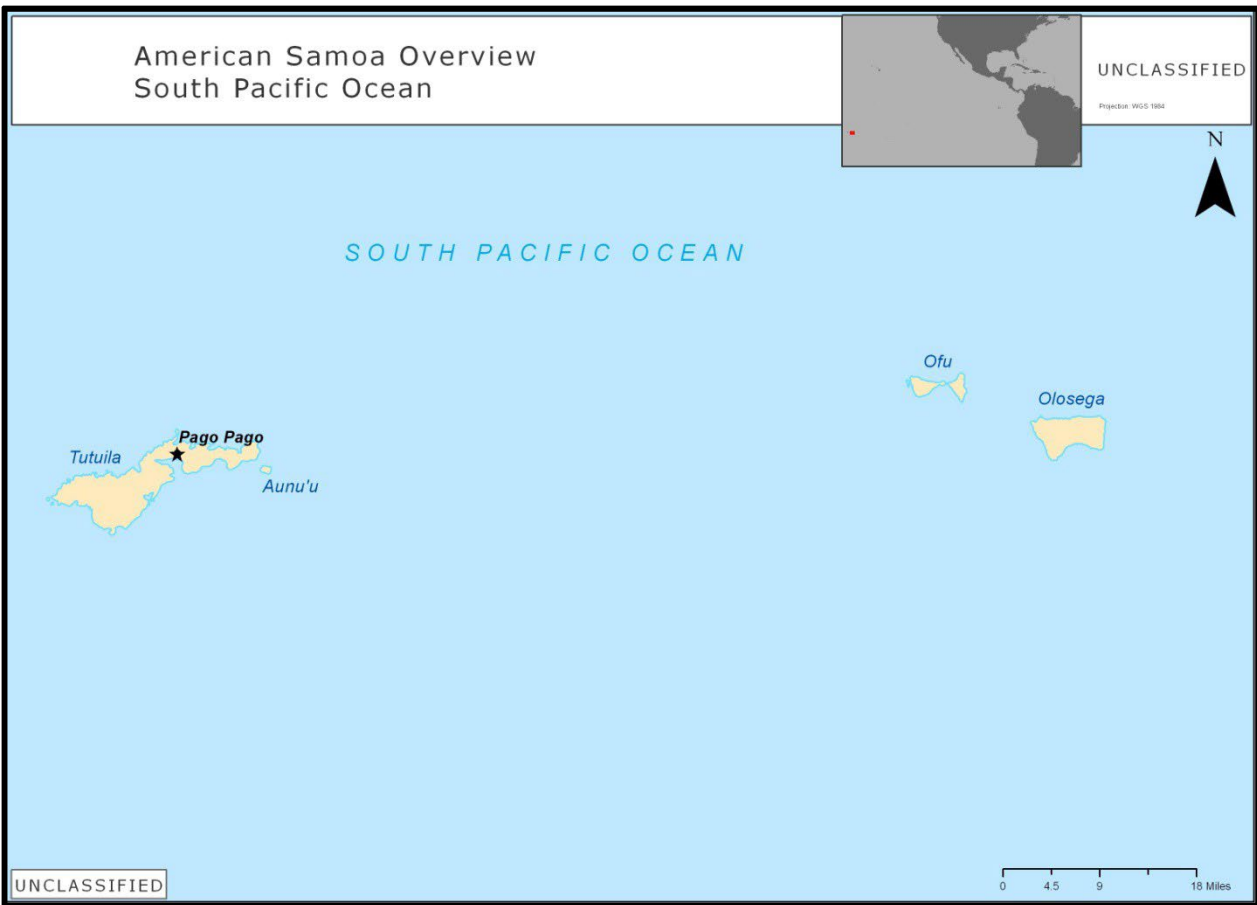


Figure 1-15: Territory of American Samoa

Commonwealth of the Northern Mariana Islands

CNMI is a commonwealth in political union with the U.S. under the jurisdiction of the Office of Insular Affairs, DOI. CNMI consists of 14 islands extending in a generally north-south direction

for 338 miles. With almost 570,000 people, Saipan is the largest island (46 square miles) and is the government center (Figure 1-16: Commonwealth of the Northern Mariana Islands). Thousands of other people live on the islands of Rota (32 square miles) and Tinian (39 square miles), which are largely rural.

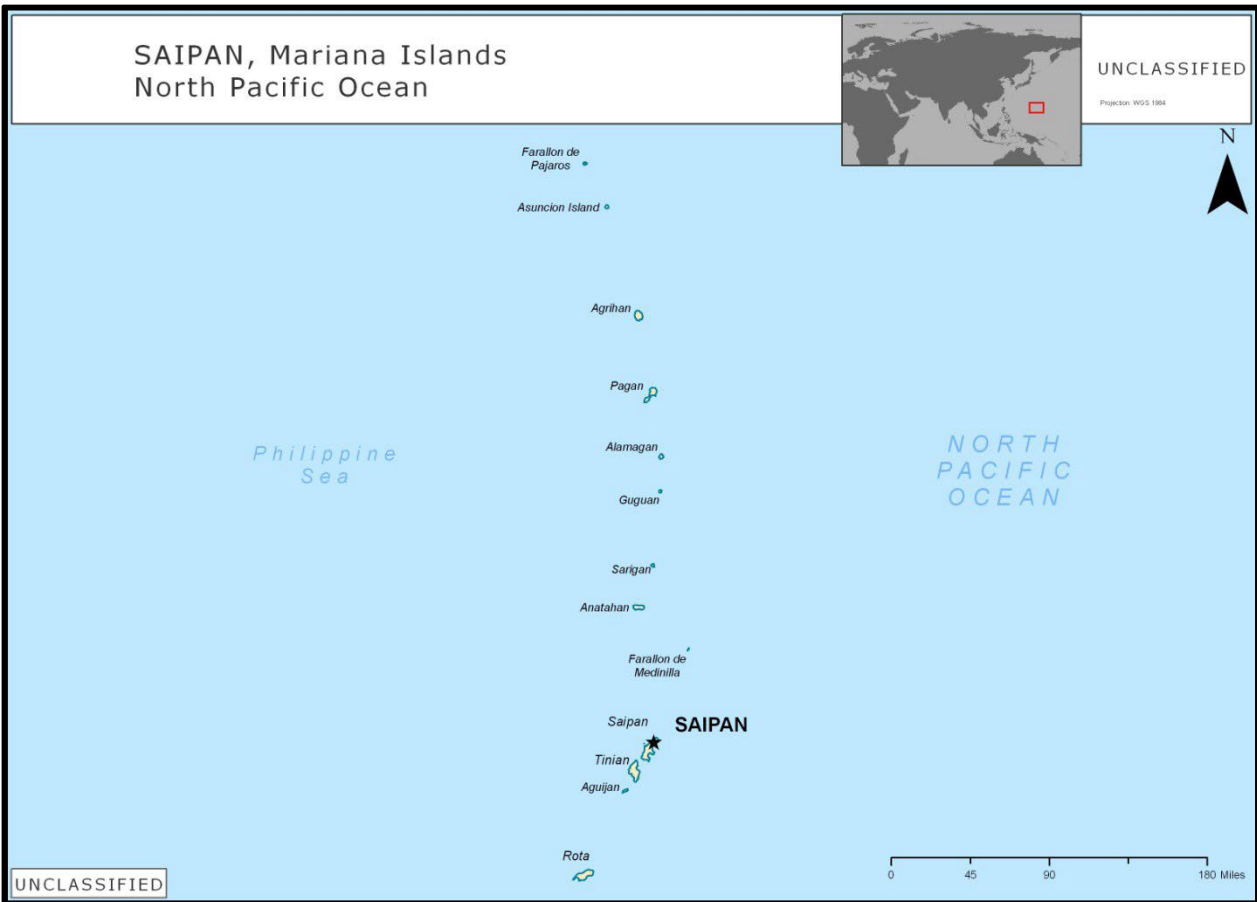


Figure 1-16: Commonwealth of the Northern Mariana Islands

Federated States of Micronesia

FSM (with Palau) forms the archipelago of the Caroline Islands and lies approximately 497 miles east of the Philippines. FSM consists of 607 islands and includes (from west to east) the States of Yap, Chuuk (formerly Truk), Pohnpei (formerly Ponape), and Kosrae. It is scattered over more than 1 million square miles of ocean (Figure 1-17: Federated States of Micronesia). FSM's largest island cluster is Pohnpei (163 islands) while the smallest cluster is Kosrae (5 islands). The islands include a variety of terrains, ranging from mountainous to low, coral atolls and volcanic outcrops.

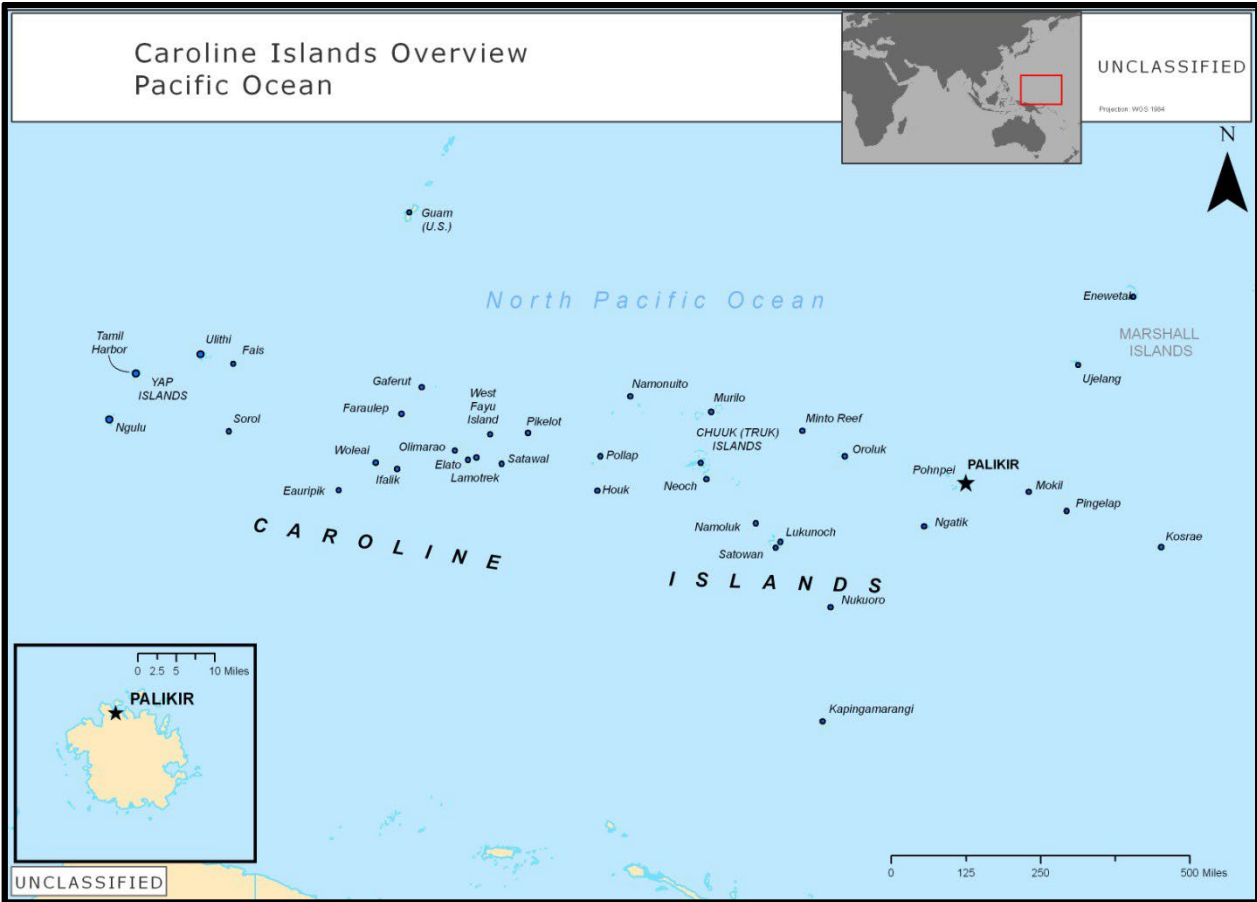


Figure 1-17: Federated States of Micronesia

Republic of the Marshall Islands

RMI is in the North Pacific Ocean approximately 2,486 miles northeast of Australia. RMI consists of 2 groups of small islands, atolls (coral islands), and reefs running from northwest to southeast (Figure 1-18: Republic of the Marshall Islands). The more easterly of these is the Ratak Chain; the more westerly, the Ralik Chain. It is estimated there are 1,152 islands and 30 atolls, but only 4 islands and 19 atolls are inhabited. With terrains of coral, limestone, and sand, none of the islands have any high ground, and the most elevated location of the islands is 33 feet. Approximately 60 percent of the total land area across all the islands is taken up by crops. RMI’s capital is Majuro, which is located on an atoll of the same name.



Figure 1-18: Republic of the Marshall Islands

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Section 1-13: Nongovernmental Organizations (NGOs)

When a community's resources are insufficient to respond to an incident, local government may call on nongovernmental organizations for assistance.

NGOs are non-profit entities with an association that is based upon interests of its members, individuals, or institutions. Notwithstanding a few non-profit organizations created by Congressional charter, these organizations are not created by government but may work cooperatively with it at any level from local municipalities to international agencies. Such organizations serve a public purpose, not a private benefit. Examples of NGOs include charitable organizations and the American Red Cross.

As required under HSPD 5, NIMS enables responders from different communities with a variety of job responsibilities to work together more effectively and efficiently. Everyone has a role to play in NIMS implementation – including SAR.

Functions

NGOs render assistance through existing EOCs and other structures. NGOs can provide invaluable assistance to CISAR operations, including shelter, emergency food supplies, assistance with animals, and other vital CISAR support services. These groups often provide specialized help for individuals with special needs, including those with disabilities.

Working Relationships

Effective interagency coordination with NGOs requires pre-event planning to leverage the capabilities of these cost-effective resources. These organizations can provide operational and logistical expertise and can also help manage volunteer services and donated goods. Voluntary Organizations Active in Disaster (VOADs) contribute services that can enhance the CISAR response. Pre-event planning is the key to leveraging NGO capabilities.

Private Sector

The private sector is responsible for most of the critical infrastructure and key national resources and thus may require assistance in the wake of a disaster or emergency. They also provide goods and services critical to CISAR response efforts, either on a paid basis or through donations.

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| Part 2 | CISAR Management

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Section 2-1: CISAR Management and Operations

The NSP and NSS are largely based on international conventions U.S. SAR services are obligated to follow. These references are written to maximize the effectiveness of SAR operations, particularly when working with military services, SAR authorities of other nations, or with ships, or aircraft at sea.

In addition to following relevant provisions of these references for CISAR, the NIMS organizational structure will normally be implemented for overall response management. Use of NIMS is particularly important when non-SAR operations are being conducted in conjunction with a large CISAR operation.

For large incidents that may involve both SAR and non-SAR activities, the SMC will initiate action and coordinate the overall CISAR response in accordance with the references mentioned above and NIMS.

Incident Commander (IC)

The IC may be designated as the SAR Mission Coordinator (SMC). However, separate individuals should carry out the IC and SMC functions if the operational tempo and/or span of control requires separate positions.

For large CISAR operations that may include other non-SAR activities, IC tasks may include:

- Standing up the Incident Command and NIMS organization;
- Mobilize additional appropriate resources as soon as possible to stabilize the situation or assist in the non-SAR operations;
- In consultation with FAA, provide advisory air traffic service to aid pilots in maintaining safe operations;
- Assign or request a Public Information Officer (PIO) to provide initial information to the media and establish a 24-hour Joint Information Center (JIC) to provide timely information and updates on progress of SAR efforts and outline of future actions;
- Be available to provide press briefings;
- Use appropriate assistance to notify Next-of-Kin (NOK) as soon as possible; and
- Maintain daily contact with NOK, provide progress of CISAR efforts and outline future

Incident Management Handbook

The USCG Incident Management Handbook is widely used by Federal and other agencies and addresses SAR within the context of a major incident.

<https://cglink.uscg.mil/nsarc>

actions.

SAR Mission Coordinator (SMC)

The IC will designate an individual to serve as SMC, but it is typically filled by the Responsible Authority. The SMC serves as the link between the SAR system and the NIMS organization and is best placed at the Branch Director or Group Supervisor level. Under the IC's general direction, the SMC coordinates the CISAR response in accordance with the NSP and associated documents.

(Note: For further information on SMC, refer to Section 2-6: SAR Mission Coordinator (SMC)).

On-Scene Coordinator (OSC)

The OSC coordinates the SAR mission operations on-scene, using available resources. OSCs are typically only used in maritime SAR but is described here for background on how OSCs are used and integrated into CISAR operations.

The OSC may also serve as a Branch Director or Group Supervisor to manage on-scene operations other than SAR, particularly after the CISAR operation is concluded and other missions take precedence (such as search and recovery). OSC duties may include the following:

- Implement the SAR Action Plan;
- Establish and maintain communications with the SMC;
- Relay communications between SMC and SAR Response Units;
- Operational control and coordination of assigned CISAR aircraft, boats, and response teams;
- Establish and maintain communications with CISAR aircraft, boats, and response teams using assigned on scene channels;
- For arriving CISAR aircraft, boats, and response teams, provide initial briefing and search instructions;
- Provide advisory air traffic service to aid pilots in maintaining aircraft separation;
- Carry out SAR action plans and modify plans to cope with changing on scene conditions advising the SMC of all major changes;
- Receive and evaluate survivor sighting reports, and divert CISAR responders to investigate sightings;
- Obtain search results from departing CISAR aircraft, boats, and response teams;
- Submit sequentially numbered situation reports (SITREPs) to the SMC at regular intervals;

- Establishment of a common altimeter setting for all on-scene aircraft (this may be done by the Aircraft Coordinator (ACO) or senior pilot if the OSC is a surface unit); and
- Require aircraft to make “operations normal” reports to the OSC. It is recommended that:
 - For helicopters: every 15 minutes; and
 - For multi-engine fixed-wing aircraft: every 30 minutes.

Note: Operations-normal reports may also be instituted for non-aviation SAR resources at suitable intervals to monitor status, personnel safety, fatigue, operators with limited training or experience, area hazards, density and diversity of resources being used.

Transitioning from CISAR Operations

For some incidents, the CISAR response may be completed, or operations suspended by the time the Incident Command is fully operational. As the CISAR operation winds down, the IC may designate the OSC in the SAR response to also serve as a Branch Director or Group Supervisor to manage on-scene operations other than SAR. Likewise, CISAR responders may also be reassigned to other groups in the NIMS structure once the CISAR operation is concluded.

CISAR responders should receive sufficient NIMS training to carry out their respective duties within the ICS.

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Section 2-2: CISAR Operating Principles

Federal SAR support in a disaster must be provided in a timely manner to save lives, prevent human suffering, and mitigate severe damage. This may require mobilizing and deploying assets before they are requested via normal NRF protocols.

The nature of a catastrophic incident may immediately overwhelm State, Tribal, Territorial/Insular Area, and local response capabilities and require immediate Federal support.

Federal support can be provided immediately under the authority of the NSP, and in the form of initial assistance that FEMA is able to provide under the NRF.

Lifesaving Priority

A CISAR operation may involve very large numbers of persons needing assistance. Priority must be given to human lifesaving.

Lifesaving efforts must be immediate to be effective.

Scope of Operations

The nature and scope of a catastrophic incident may result in large numbers of persons in distress and include CBRNE attacks; disease epidemics; and major natural or manmade hazards.

Multiple incidents may occur simultaneously or sequentially, in contiguous or noncontiguous areas.

The incident may cause significant disruption of the area's critical infrastructure, such as energy, transportation, telecommunications, and public health and medical systems.

Local CISAR response capabilities and resources (to include mutual aid from surrounding jurisdictions and support from the State, Tribe, or Territory/Insular Area) may be insufficient and quickly overwhelmed. State, Tribal, Territorial/Insular Area, and local emergency personnel who normally respond to incidents may be among those affected and unable to perform their duties.

Immediate Response

When appropriate for lifesaving, Federal Departments and Agencies that conduct SAR operations generally have authority to respond immediately (includes DoD component commands).

Normally, awareness of the need for immediate response becomes known due to direct receipt of calls for help from persons in distress (such as distress alerts to an RCC), or requests for

assistance from a recognized civil authority.

It should be noted nothing in any Federal plan is ever intended to preclude prompt assistance to persons in distress when it can be reasonably be provided.

With rare exceptions (e.g., critical national security situation, CBRNE environment, interference with critical military duties), jurisdictional, legal, or financial considerations should not preclude prompt response to save lives.

Typically, a unified response builds upon the work of those providing immediate aid to those in distress.

Response Actions

Four key response actions typically occur in the conduct of CISAR operations:

- Gain and maintain situational awareness;
- Activate, pre-position, and deploy SAR resources and capabilities;
- Efficiently and effectively integrate, coordinate, and conduct lifesaving response actions in support of State SAR authorities and their operation plans; and
- As the situation permits, demobilize Federal SAR resources.

Key Principles

Key principles that must be applied for successful CISAR operations are:

- Engaged partnership between Federal, State, Tribal, Territorial/Insular Area, and local SAR authorities;
- A tiered CISAR response;
- Scalable, flexible, and adaptable CISAR capabilities;
- Unity of effort; and
- Readiness.

In addition, the principle of using all available resources to save lives is especially pertinent in demanding CISAR operations.

CISAR Responder: Balance of Risk

In CISAR operations, lifesaving must be weighed against the risks taken by CISAR responders. To save lives and protect property, decisive action on scene is often required of CISAR

responders. Although some risk may be unavoidable, CISAR responders can effectively anticipate and manage risk through proper training, planning, and situational awareness.

Tiered Approach

CISAR operations should be implemented through a tiered approach (Figure 2-1: Tiered Approach to CISAR Operations):

- If required, State assistance will supplement local efforts; and
- When requested, Federal assistance will supplement State, Tribal, Territorial/Insular Area, and local CISAR efforts.

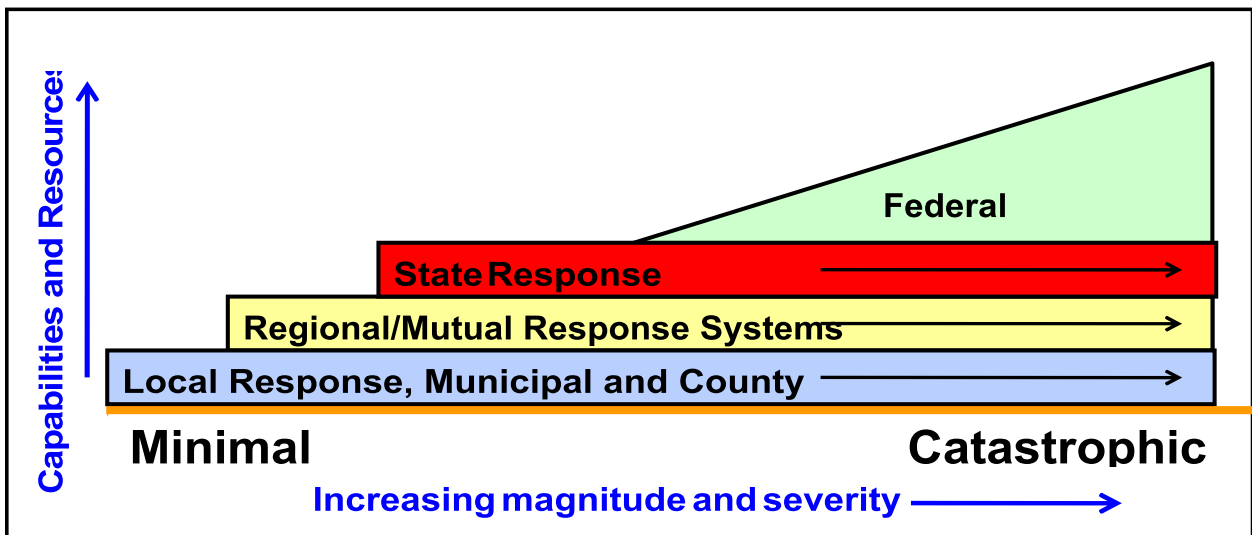


Figure 2-1: Tiered Approach to CISAR Operations

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Section 2-3: CISAR Planning Considerations

Interoperability, synchronization, and efficient unity of effort among multiple agencies are fundamental imperatives to lifesaving during overwhelming Mass Rescue Operations (MRO) within a CISAR environment.

Well-coordinated operational efficiency among multiple agencies and numerous resources in support of State, Tribal, Territorial/Insular Area, and local SAR operations can only be achieved

Goals of CISAR Planning

1. To enable a collaborative, interagency planning process and achieve standardized interoperability among all agencies and resources across all domains.
2. To locate, rescue, and safely transport persons in distress within an unbroken operational chain of events in the timeliest manner possible.

through an integrated, collaborative planning process. This section highlights new, emerging concepts, procedures, and planning considerations to assist the CISAR planner at all levels of government and planning architectures (strategic, operational, and tactical).

Planning in normal routine SAR is to find survivors of a distress incident as quickly as possible. Subsequently, the actual rescue and transport to safety of survivors during routine SAR seldom requires extensive planning and is normally accomplished uneventfully through agency specific practices and standard operating procedures.

However, timely rescue and transport to safety in response to the immediate need of extremely large numbers of persons in distress following a catastrophic incident will likely be insufficient and

hampered by damage to critical infrastructure and key resources.

During an MRO, the overwhelming magnitude of individuals needing rescue will likely dominate the immediate operational requirement. As such, the “search” portion of SAR and the scientific mathematics and algorithms used to develop optimal search plans may be of limited value in CISAR planning and operations.

Therefore, the development of a thorough, all domain (e.g., land, waterborne, and air), multi-agency integrated plan to efficiently affect recovery, provide medical treatment, and transport survivors to places of safety demands the full attention of SAR planners and decision makers at all levels of government.

The prospect of overwhelming numbers of people requiring immediate life-saving assistance poses the greatest challenge to CISAR planning and effective operations. This prospect will likely require timely implementation of resources from multiple Federal, State, and local

agencies.

Lessons Learned

In the aftermath of Hurricane Katrina (2005), and more recent major hurricanes such as Ike (2008), Sandy (2012), Harvey (2017), and Maria (2017), extensive flooding required the rescue of thousands of distressed persons which overwhelmed first responders. Additionally, hundreds of State and Federal responders operated without the benefit of essential SAR enabling functions and information which further compounded an already extremis situation (see CISAR Mission Enabling Functions in this Section). During the response operations, transporting small numbers of rescued persons many miles to places of safety or placing rescued persons on higher ground in the vicinity (to speed up further rescues) with no follow-on assistance proved grossly inefficient and left survivors at continued risk.

Beginning with Hurricane Katrina, an all-domain integrated operational chain was implemented by first responders. Survivor Collection Points (SCP), also known as a Lily Pad - see Section 2-8: Delivery of Survivors) were identified for intermediate drop-off of distressed persons providing medical treatment and follow-on transport to places of safety allowing rescue resources to quickly return to scene.

To be effective for future, similar operations, putting this unbroken chain of events into timely practice demands the utmost of integrated collaborative planning and response operations in accordance with a well-designed, comprehensive CISAR Plan that swiftly enables efficient SAR mission coordination regardless of the magnitude of the incident or the number of responders.

Planning is foundational for CISAR preparedness and response. CISAR planning will:

- Maximize the benefits of collaboration among SAR SMEs from multiple State and Federal agencies;
- Enable synchronized, fundamental SAR mission coordination among multiple agencies;
- Prepare communities to receive responding out-of-area SAR resources and swiftly integrate them into operations;
- Attain timely full operational capability;
- Achieve the most efficient and effective use of all available resources;
- Allow jurisdictions to influence the course of events in a CISAR operation by determining in advance the actions, policies, and processes to be followed;
- Guide other preparedness activities;
- Enable awareness of capabilities across the response community; and
- Contribute to unity of effort by providing a common response blueprint.

Federal, State, Tribal, Territorial/Insular Area, and Local Planning Relationships

Federal, State, Tribal, Territorial/Insular Area, and local plans describe each respective government's approach to SAR operations. Because these levels of government all provide support to operations conducted at the local level, plans may have similar and overlapping functions.

Planning must be coordinated among all levels of government to ensure a singular operational focus. The goal is to ensure the effectiveness of combined Federal, State, Tribal, Territorial/Insular Area, and local operations through integration and synchronization.

An integrated, all-of-Nation, capabilities-based approach to planning helps define how Federal Departments and Agencies provide the right resources at the right time to support State, Tribal, Territorial/Insular Area, and local CISAR operations. From the States' perspective, integrated planning provides answers to questions about working with other organizations and obtaining resources.

The National Frameworks are scalable, flexible, and adaptable to accommodate the many State, Tribal, Territorial/Insular Area, and local government planning formats, styles, and processes. They lay the initial foundations and provide a means for synchronizing operations across the spectrum of response operations and thus enable integrating national CISAR planning efforts both horizontally across the Federal Government and vertically among Federal, State, Tribal, Territorial/Insular Area, and local entities.

State, Tribal, Territorial/Insular Area, and local governments are encouraged to review, provide feedback, and utilize the five National Planning Frameworks (available at: <https://www.fema.gov/ppd8>).

The frameworks:

- Provide general guidelines on developing Interagency Operational Plans (IOPs);
- Promote a common understanding of the fundamentals of planning and decision making; and
- Can help emergency planners produce integrated, coordinated, and synchronized SAR plans.

PPD-8 supports national vertical integration by clearly articulating Federal planning procedures to State, Tribal, Territorial/Insular Area, and local governments and establishes a consistent SAR planning process across all levels of government.

CISAR Planning Factors

The challenge of planning for saving lives and property is made easier if planners consider the following common factors during the planning process (Figure 2-2: CISAR Planning Factors).

<p>Planning is influenced by time, uncertainty, risk, and experience</p>	<ul style="list-style-type: none"> • These factors are the essence of successful planning. • Effective CISAR planning is more of an art than a science, relying heavily on the creativity and experience of those involved--especially the SMC.
<p>Planning should involve all relevant partners.</p>	<ul style="list-style-type: none"> • Led and managed by a State SAR SC / SMC. • A successful CISAR Plan is the result of a collaborative process among multiple State and Federal SAR and SAR-enabling agency SMEs.
<p>Planning is an orderly, analytical, problem-solving process.</p>	<ul style="list-style-type: none"> • Planning follows logical steps from initiation to analysis of objectives to development and comparison of ways to achieve the objectives. • The goal of this process is to end with selection of the best solution.
<p>Planning guides preparedness activities.</p>	<ul style="list-style-type: none"> • It is a common framework to guide preparedness by establishing the desired end state and the tasks required to accomplish it. • <i>This process identifies CISAR enabling functions required for resources to conduct and prosecute CISAR.</i>
<p>Planning helps to understand and respond to what may be a very complex CISAR operation.</p>	<ul style="list-style-type: none"> • Catastrophic events embody the greatest risk of mass casualties, massive property loss, and immense infrastructure and social disruption.
<p>Planning should address functions common to all hazards.</p>	<ul style="list-style-type: none"> • SAR responder enabling functions and conducting fundamental SAR mission coordination is a common necessity to all hazard operations.
<p>Planning should be based on existing plans and procedures.</p>	<ul style="list-style-type: none"> • Planners should capitalize on plans, procedures, and lessons learned from other incidents. • The State is a valuable resource for the local jurisdiction, just as the Federal Government is a valuable resource for the State.
<p>Planning depicts the anticipated environment for action.</p>	<ul style="list-style-type: none"> • Early understanding and agreeing on planning assumptions among all CISAR stakeholders provides the context for interaction.
<p>Planning assigns tasks, allocates resources, and establishes accountability for CISAR ops.</p>	<ul style="list-style-type: none"> • Decision makers must ensure planners have the resources needed to accomplish the planning requirements.
<p>Planning includes senior officials throughout the process to ensure both understanding and buy-in.</p>	<ul style="list-style-type: none"> • Planning helps decision makers not otherwise knowledgeable with CISAR to anticipate and think critically, reducing time between decisions and actions.
<p>Planning identifies the task and purpose of the operation and facilitates cooperation and communication.</p>	<ul style="list-style-type: none"> • One of the benefits of CISAR planning is that important constraints and restraints that affect freedom of action and expectations of all CISAR responders are identified.
<p>Planning is fundamentally a risk management tool.</p>	<ul style="list-style-type: none"> • Uncertainty and risk are inherent to response planning and CISAR operations • See Section 3-1: CISAR Risk Assessment.

Figure 2-2: CISAR Planning Factors

Time Driven Objective and Resources to Support

The primary objective of CISAR is two-fold and time-driven:

- Special Response Teams (SRT) and hasty searches completed within 24 hours; and
- Primary searches completed within the next 48 hours. (See Section 2-7: CISAR Searches)

With the possibility of overwhelming MRO within a CISAR environment, time is the enemy. Knowledge of the SAR resources required to achieve these objectives within the specified time is paramount. Capability gaps that may adversely affect achieving time driven objectives can be identified at the local level. Any additional resource requirements must be requested as early in the planning process as possible.

Planners at all levels of government should use a capabilities-based approach to determine CISAR resource requirements. An incident specific gap analysis should be the basis for State, Tribal, Territorial/Insular Area, and local SAR planners in their initial determination of the necessary resources required to achieve CISAR objectives. This approach will also provide better clarity and justification for external resource requests (e.g., EMAC, Pre-scripted Mission Assignment (PSMA), and Request for Federal Assistance / Mission Assignment (RFA / MA)).

Questions may need to be posed, variables will need to be considered, and factors will need to be determined to better ascertain CISAR resource requirements. Table 2-1: CISAR Planning Questions asks several questions that should be considered when conducting CISAR planning.

Table 2-1: CISAR Planning Questions

CISAR Planning Questions	
Question	Follow On Considerations
What areas are at risk?	What is the size and the predominant domain of the area(s) that will require search and rescue?
What is the potential number of persons in distress?	What is the population density (Urban) or domiciles per square mile (Rural)?
What is the (supported) State/local SAR Plan and who is the (supported) State SAR Coordinator?	Establish immediate dialogue. Where is the SAR planning “center of gravity”? Will the State stand-up a Unified SAR Cell? Can you offer/provide timely SAR planning assistance?
Where are the key SAR coordination cells and which should be manned?	NRCC, FSARCG, RRCC, JFO/IMAT, JPRC, SAR-OCE, State EOC, National Guard, State SC/SMC.

What are the environmental concerns?	Geographic; forecasted weather; and night operations.
Can CISAR objectives be met with State, Tribal, Territorial/Insular Area, and local resources?	Measure: Hasty Searches within 24 hours; Primary Searches within next 48 hours; desired search effectiveness (Probability of Success (POS))?
What are the resource requirements to achieve the CISAR Objectives and what are the capability gaps?	Conduct ongoing analysis with SC/SMC and State RCC.
What are some enabling capabilities?	Airspace Management Plan, Airfield/Fueling Matrix, Interoperable Comms/Lilypad/SCP Matrix, Hospital Status Matrix, Gridding Standards, Geo-Referencing guidance, Transport, Animal guidance, Incident Awareness and Assessment imagery; and Transport.
What additional capabilities should be considered?	FAA assistance/LNOs to facilitate Airspace Management Plan/TFRs.

CISAR Chain of Events

Table 2-2: Standard CISAR Chain of Events is the general chain of events that occur during CISAR operations.

Table 2-2: Standard CISAR Chain of Events

Standard CISAR Chain of Events	
Event	Actions
1. Gain Situational Awareness	<ul style="list-style-type: none"> • Build enterprise awareness of scale and scope of disaster • Identify key SAR coordination elements
2. Search	<ul style="list-style-type: none"> • Locate (Special Response Teams (SRT)) • Hasty and primary searches
3. Rescue	<ul style="list-style-type: none"> • Via air, land, and/or waterborne
4. Transport	<ul style="list-style-type: none"> • Survivor Control Points • Places of Safety • Out-of-area transport

Resource Efficiency (Capability vs. Time)

Planners should use a capabilities-based approach to determine CISAR resource requirements. However, a capabilities-based assessment cannot be accomplished without reasonable knowledge of the resource efficiencies of available or potential requested assets. Many key State

EPLOs and State SCs have communicated a need for this knowledge and have requested resource efficiency guidance to further assist in CISAR planning.

Table 2-3: General Resource Rates provides general aviation resource and FEMA US&R Task Force efficiency rates as a guide for SAR planners to consider when determining CISAR resource requirements.

Table 2-3: General Resource Rates

General Resource Rates		
Helicopters	Fixed-Wing Aircraft	FEMA US&R Task Force
<p>Search</p> <p>“</p> <ul style="list-style-type: none"> • 17 - 25 square miles per hour per helicopter; • Based on 60 – 90 mph, ¼ mile track spacing • Area searched per hour may vary depending on actual search speed and track space flown as search area conditions (Urban, Suburban, and Rural) and environmental factors dictate. <p>Rescue/Transport to Survivor Control Point (SCP) Planning Assumptions:</p> <ol style="list-style-type: none"> 1. Evacuation of people from an organized evacuation site (site providing security and tracking accountability) 2. Ground loading of persons for transport (hoist operations will increase time and reduce helicopter capacity) 3. Non-standard, floor loading of persons authorized (passenger seats removed) 4. Timing: 10 minutes on-scene and 10 minutes or less to/from the SCP (each aircraft can conduct two turns per hour) <ul style="list-style-type: none"> • Light Helicopter (HH65, UH-1, LUH72): 5 passengers per trip; 10 passengers per hour • Medium Helicopter (H60): 10 passengers per trip; 20 passengers per hour • Heavy Helicopter (CH-53; CH-47): 25 passengers per trip; 50 passengers per hour 	<p>Search</p> <ul style="list-style-type: none"> • 50 – 100 square miles per hour per airframe; • Based on 90 – 180 mph, ½ mi Track Spacing; • Light (Civil Air Patrol (CAP); Unmanned Aerial Vehicle (UAV)): 50 square miles per hour; • Medium (HU25, HC130): 100 square miles per hour • Area searched per hour may vary depending on actual search speed and track space flown as search area conditions (Urban, Suburban, and Rural) and environmental conditions dictate. 	<p>Search</p> <p>There is no specific US&R Task Force search rate. The number of structures (or size of area) that one US&R Task Force can search during a 12-hour operational period is incident-specific. The nature of the event, type of construction, occupancy type, degree of damage, void conditions, complexity of operations, time of day, environment, and logistical challenges all impact the calculation of a general resource rate. An estimated rate will be identified during the response, based on incident-specific information.</p> <p>Search efficiency can be force-multiplied up to a factor of 4 if military support to US&R is requested and provided.</p>
<p><i>(Note: Extended CISAR operations may require additional aircraft.)</i></p>		

Search Theory and Search Effectiveness

The science of CISAR is not nearly as developed as SAR planning and operational disciplines that have matured over many years within the maritime and isolated inland domains. However, truly effective CISAR planning is more of an art than a science and relies heavily on the creativity and experience of the people involved, particularly the SMC (see Section 2-6: SAR Mission Coordinator (SMC)).

The CISAR planner should utilize and adapt traditional search planning methods to the CISAR environment.

Uncertainties are enormously magnified during CISAR planning. What normally is a simple determination of what SAR resources are required for routine SAR becomes a challenge to even the most experienced planner in a CISAR environment.

Despite the lack of CISAR specific search theory applications, search planners should utilize existing search theory and modeling applications and mold them to the CISAR environment to determine search effectiveness.

Search effectiveness is the probability that a given search will succeed in locating the search object and is measured and defined within traditional search theory in terms of a percentage of Probability of Success (POS). POS is the resultant of Probability of Detection (POD) and Probability of Containment (POC).

The CISAR planner must have adequate resources available to achieve CISAR time driven objectives. In attempting to assess required resources, the planner must weigh uncertain variables against known resource efficiency and factor these assessments against the desired search effectiveness (POS).

CISAR Mission Enabling Functions

Common to all CISAR operations during a unified SAR response is the large numbers of out-of-

Mission Enabling Functions

To meet SAR objectives during the first 48-72 hours, it is imperative to underscore how critical the above SAR enabling functions are to CISAR mission success. Solidifying the functions averts certain confusion among managers and responders alike, which has been a recurrent challenge of prior U.S. State and Federal unified CISAR responses.

Developing CISAR enabling capabilities will require an extensive collaborative approach among many State agencies and Emergency Support Functions. Mature, harmonized, and effective products will require numerous iterations and can take many months to complete. The time afforded by an approaching hurricane event to develop these products will be insufficient.

area resources requested by State authorities. The number of aircraft, vehicles, and boats can number into the hundreds – overwhelming State, Tribal, Territorial/Insular Area, and local SAR authorities.

When large numbers of EMAC, federal and other out-of-area SAR resources arrive and are unfamiliar with the operating area, the ability of these resources to swiftly receive tasking and safely prosecute SAR within the area of operations (AO) is severely truncated by the lack of essential mission enabling functions and information. Simply put, all SAR supporting resources require three pieces of information:

- Where are we searching;
- Where are we taking survivors; and
- How do we operate safely within the AO?

To satisfy these three basic and necessary SAR information requirements, key enabling functions must be collaboratively produced among several State ESFs and agencies and disseminated to engaged and arriving supporting SAR resources within daily Special Instructions (SPINS). These key enabling areas include but are not limited to:

- State SAR Mission Coordination Center(s) (Synchronized mission assignments / SMC management);
- Airspace Management (De-confliction, routing, frequency assignments);
- Communications (All-Domain Interoperability);
- SCP / Lily Pad status and information;
- Hospital / Medical facility status and information;
- Geo-referencing guidance and search area gridding design; and
- Airfield, helistop and fueling status and information

Survivor Control Points (SCP) and Transportation Planning Considerations

Advanced SCP planning and survivor transportation capabilities are critical to enabling the efficient unbroken chain of rescuing large numbers of distressed persons in a CISAR environment.

With the primary function of enabling the swift drop off and on-site care of distressed persons, SCPs can be as austere as an isolated open field or riverbank or be equipped with a spectrum of services for both survivors and responders.

For potential area(s) at risk (e.g., flooding), SCPs, and routes to Places of Safety can be identified, named, and included to existing plans. For natural disasters such a hurricane and other

flooding scenarios, planned SCPs can be individually activated within a SAR Action Plan following an incident/storm passage when damage/post storm assessment dictates the most operationally efficient location.

(Note: Section 2-8: Delivery of Survivors further addresses SCPs and services that can be provided to survivors awaiting further transport to Places of Safety.)

SAR Action Plans

For a CISAR incident, the State SC will normally be the overall SMC for the incident, supported by other assisting agencies and resources. CISAR operations are too large, may involve a significant number of agencies, and are too dynamic and time sensitive to expect acceptable results from anything other than management from a single SMC for a given geographic area. For a State and Federal unified response, the SMC can expect to be fully staffed with supporting State and Federal SAR SMEs and CISAR planners. Accordingly, the SMC is responsible for developing a well-integrated SAR Action Plan and the employment of the most efficient and effective use of available SAR resources within all domains.

This singularly managed, collaborative planning process has been a proven formula for CISAR operational success for several states.

CISAR Mission Coordination Center(s)

Before and during CISAR operations, the IC/SMC, State or State regional, should implement a CISAR Mission Coordination Center of an RCC design. Under NIMS organization, this cell may likely be part of the SAR Operations Branch, under the Operations Section well-resourced with the State, Federal and local experienced SAR SMEs.

Figure 2-3: Generic State CISAR Mission Coordination Configuration depicts a generic State CISAR Mission Coordination Center configuration to include ESF #9 Support Agencies such as the FAA.

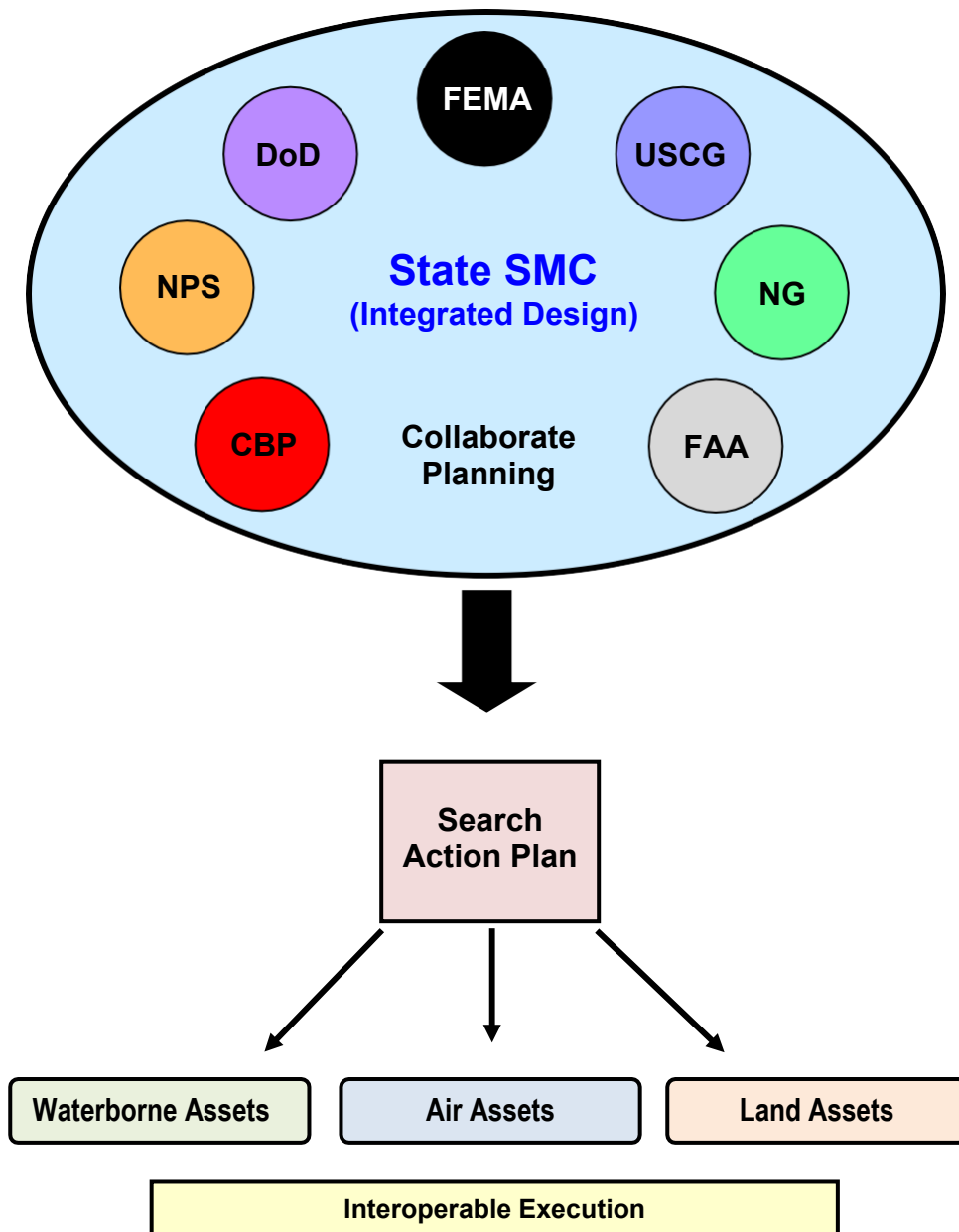


Figure 2-3: Generic State CISAR Mission Coordination Configuration

Working together, the coordination center will develop a collaborative designed and efficient SAR Action Plan.

The Mission Coordination Center is a very simple (and relatively small) group where SAR Action Plans are discussed, coordinated, developed, assigned, disseminated for execution, and managed through the SMC. They can also swiftly resolve many unanticipated issues that always surface throughout every operational period.

Figure 2-4: Comparison – International SAR System and NIMS/ICS CISAR Coordination compares the CISAR Coordination Cell concept in an Incident Command with the SAR chain-of-command organized under the international SAR system as described in the IAMSAR Manual.

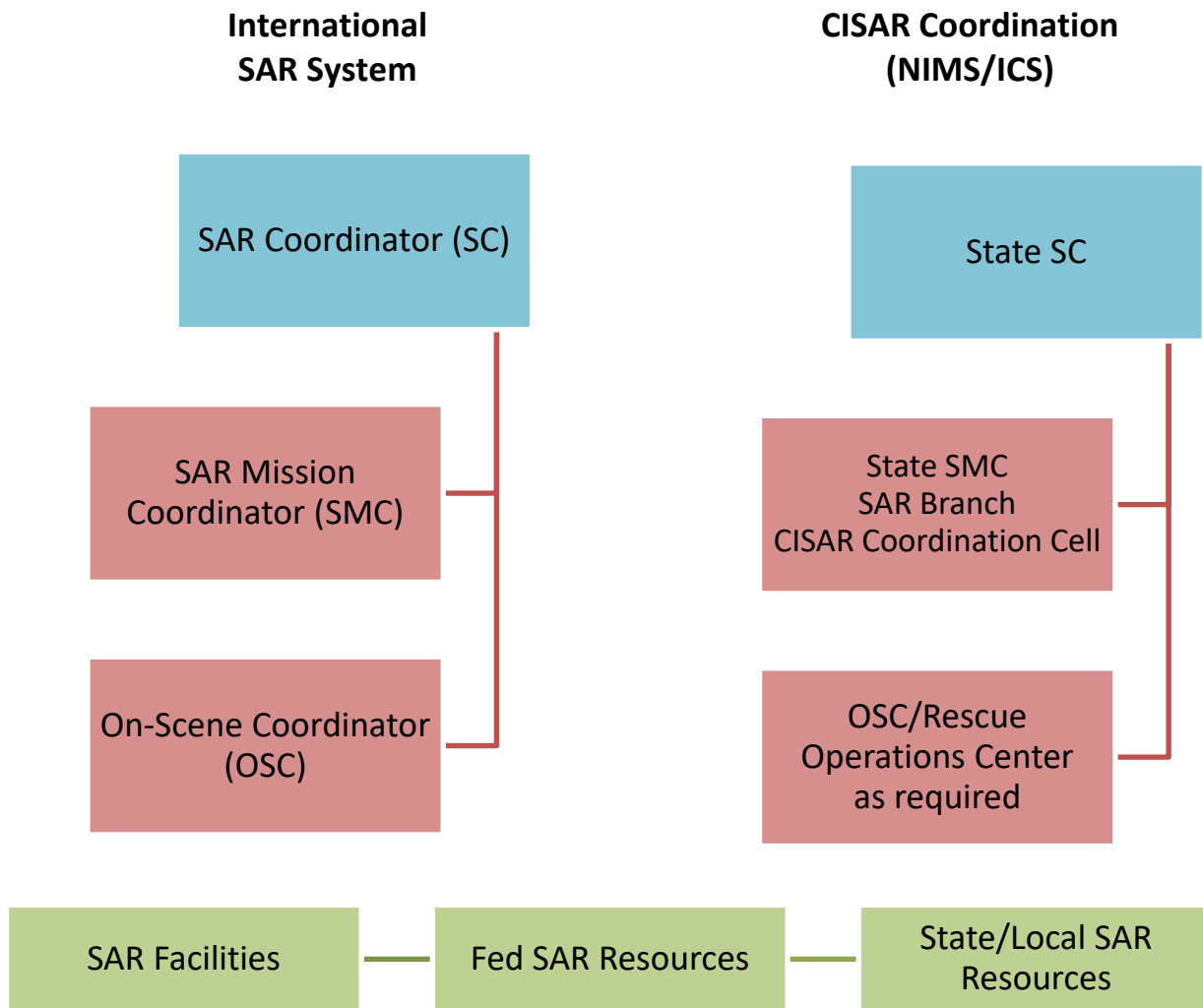


Figure 2-4: Comparison – International SAR System and NIMS/ICS CISAR Coordination

Planning Cycle

CISAR operations typically require more than one operational period. A regular planning cycle should provide for establishing objectives and deploying SAR resources. Normally, the ICS Planning “P” Operations Planning Cycle will be used to organize CISAR operations (Figure 2-5: ICS Planning “P” Operations Planning Cycle). Figure 2-6: Example 24-Hour Operations Cycle is an example of a typical 24-hour planning cycle and the meetings and deliverables throughout the cycle. Considerable additional detail and tips on incident planning is available in the U.S. Coast Guard’s Incident Management Handbook, which is available to and widely used by Federal agencies.

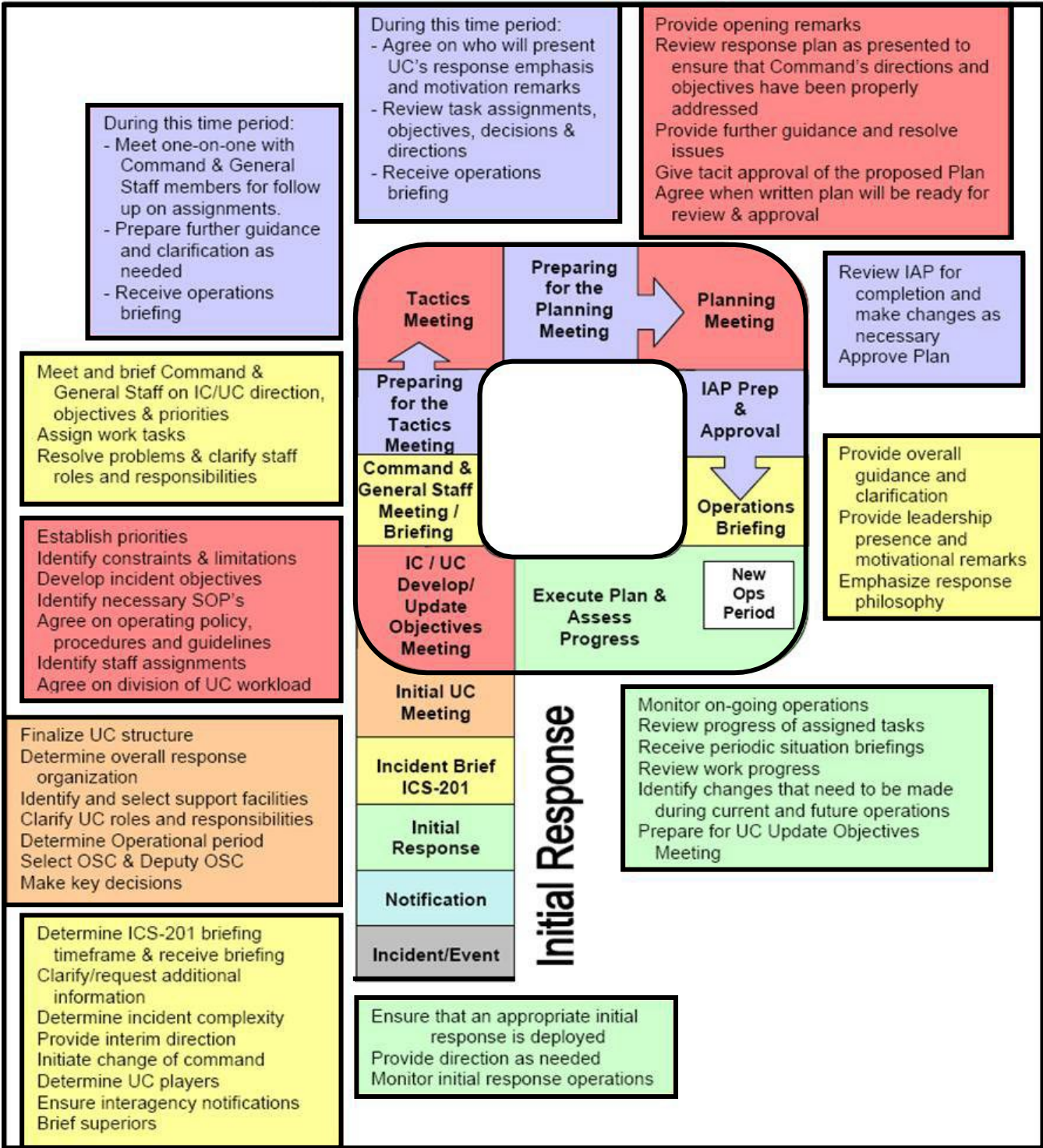


Figure 2-5: ICS Planning "P" Operations Planning Cycle

24-Hour Planning Cycle

- 06:00 Operations brief.
- 07:00 Begin operational period. CISAR Mission Coordination Center morning Brief / Internal Tactics Meeting
- 09:00 Command & General Staff meeting.
- 13:00 Branch level Unified Command meeting (State, USCG, FEMA/US&R, DOI, DoD).
- 15:00 CISAR Tactics Meeting (Air, Ground Maritime, ESFs 1, 2, 8, 9)
- 15:30 Field units report to Group/Division Supervisors on progress and operational needs for next operational period.
- 16:00 Group/Division Supervisors report to Branch Director(s) on progress and operational needs for next operational period.
- 16:30 Branch Director(s) report to Operations Section Chief on progress and operational needs for next operational period.
- 17:00 Tactical meeting (relay relevant information from CISAR Tactics Meeting).
- 19:00 Planning meeting to establish Incident Action Plan (IAP) for next operational period.
- 20:00 Approval of Search Action Plans and IAP. Disseminate SAP / Deliberate missions.
- 00:00 SAR Situation Recon / Night SAR as necessary.
- 03:00 Tactical meeting for Operations brief.

Figure 2-6: Example 24-Hour Operations Cycle

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Section 2-4: CISAR Priority Information Requirements (PIR)

SAR is a time-critical mission. Very early in a catastrophic incident, ESF #9 contributors and State, Tribal, Territorial/Insular Area, and local responders will be attempting to gain situational awareness in order to rapidly make key decisions to deploy and employ initial lifesaving, life sustaining, and critical enabling capabilities.

The following ESF #9 PIR template serves as a guide for state and region planners to develop PIRs and Essential Elements of Information (EEl)s for CISAR events within their areas of responsibility. The developed PIR template should be used to inform the Incident Awareness and Assessment (IAA) community of the information needed to make time critical rescue response decisions. Pre-established PIRs should be used during regional and national level exercises to test their effectiveness and guide decision makers to the most time critical information requirements.

The goal of establishing ESF #9 PIRs:

- Get the *right information* to the *right people* at the *right time*.
 - Focus on information requirements, not systems;
 - Get ahead of the crisis;
 - Pre-canned PIRs/EEl)s can be developed and exercised; and
 - Disseminate to all levels of the response for validation, utilization, and effort achievement.
- Time critical information categories and flow:
 - *What* information categories are needed?
 - *When* is the information needed?
 - *Why* is the information important?
 - *Who* (level of command) needs to get the information?
 - *IC, State EOC, JFO, HQs (Tactical/Operational/Strategic)*
 - *Format* of information?
 - *Make it usable to the decision makers, planners, workers, (i.e., maps, overhead, GIS, photos)*

Priority Information Requirements Template

Catastrophic SAR PIRs/EEIs

Target time: Approximately 2-hours after event

Table 2-4: PIRs/EEIs 2 Hours After Event

What	Why	Who	Format
Size of affected area	Resources/C2/JOA Planning/Ops	Strategic Operational Tactical	Map, description
Environmental Conditions	<ul style="list-style-type: none"> • Safety • Assets required • Strategic planning 	Strategic Operational Tactical	Descriptive text per NOAA standards
Water Depth (actual or anticipated flooding)	Danger Areas Transport req	Strategic Operational Tactical	Feet, per location, or max/average GIS
Travel Routes in/out (roads/bridges)	Rescue Planning Logistic Planning General Planning	Strategic Operational Tactical	Maps, text GIS
Staging bases	Resource Basing	Operational Tactical	Descriptive location GIS
Air Hubs	Interagency JOA Air plans Interagency AO Air plans	Operational Tactical	Descriptive location GIS
Initial/Potential HAZMAT risks	Resource plans Safety	Tactical Operational	EPA Maps, Descriptions, Plumes, etc.

Catastrophic SAR PIRs/EEIs

Target time: Approximately 4-hours after event

Table 2-5: PIRs/EEIs 4 Hours After Event

What	Why	Who	Format
SAR Hubs (SCPs)	Air Tasking Situational Awareness Logistics	Tactical Operational	Maps, description, GIS
Shelters of Last Resort, Hospitals/Nursing Homes	Live Saving Resource planning	Tactical Operational	Maps, status, numbers of persons
Available SAR Resources	Allocation Support Planning	Tactical Operational	Force lay-down Briefing decision makers
First Responder Shelters	Force Protection Support Planning	Tactical Operational	Maps, locations, contact information, force composition
Environmental Updates	Safety and Situational Awareness	Tactical Operational Strategic	NOAA Standard
Air Hubs	Interagency JOA Air plans Interagency AO Air plans	Operational Tactical	Descriptive location GIS
Emerging HAZMAT risks	Resource plans Safety	Tactical Operational	EPA Maps, Descriptions, Plumes, etc.

Catastrophic SAR PIRs/EEIs

Target time: Approximately 6-Hours after event

Table 2-6: PIRs/EEIs 6 Hours After Event

What	Why	Who	Format
Environmental Health and Safety / Updates	Force Protection, Rescue Priorities Plans	Tactical Operational Strategic	EPA Maps, description, Plumes, etc.
Dam/Levee integrity	Resource plans Safety	Tactical Operational Strategic	US Corps of Engineers briefings, maps, charts
HAZMAT risks	Resource plans Safety	Tactical Operational	EPA Maps, Descriptions, Plumes, etc.
Fires, location, and intensity	Rescue allocation Resourcing	Tactical Operational	Maps, Text, radio,
SAR Forces / Resources Changes	Force application Force laydown Fore allocation	Tactical Operational Strategic	Force lay-down Brief
Environmental Update	Safety, Situational Awareness	Tactical Operational Strategic	NOAA Standard

Catastrophic SAR PIRs/EEIs

Target time: Approximately 8-Hours after event and as required there after:

Table 2-7: PIRs/EEIs 8 Hours After Event

What	Why	Who	Format
Updates to previous PIRs	C2	As Appropriate	As Appropriate
Initial SAR Plan	C2	Tactical	Briefing
Real time tracking and accountability of SAR Assets/Forces/Teams	C2	Tactical	Maps, Radios, GPS, Blue Force Tracker
Status of Incident Commander SAR objectives	Identify unmet needs	Tactical Operational	Descriptive
Environmental update	C2/ Safety	Tactical Operational Strategic	NOAA Standard

Section 2-5: Notice and No-Notice Events

A catastrophic incident may occur with little or no warning.

Substantial information (e.g., storm forecasts) or clues (e.g., disease symptoms) may provide additional time to prepare before or in case CISAR operations are required.

Other events, such as earthquakes or cyber-attacks that cause physical destruction, may occur with no warning. Such events are referred to as “no-notice” events. A CISAR response caused by a hurricane, would be considered a “notice” event.

Pre-event Opportunities

Notice events, such as approaching hurricanes, provide CISAR responders with the opportunity to predict the response demands, pre-position CISAR aircraft, boats, and response teams, and develop specific action plans.

No-notice events like earthquakes and some man-made disasters happen unexpectedly.

Response activities to notice and no-notice events are similar. However, maximum advantage should be taken of any time available before an expected event to maximize the success of post-event efforts.

Preparations

Before a notice event occurs, SAR authorities should:

- Designate the SMC;
- Review/update applicable SAR plans and mission enabling functions are made available to local and interagency SAR partners;
- Update the readiness status of available SAR resources;
- Determine capability gaps and additional SAR resource requirements;
- Track the status of evacuations; and
- Monitor the storm or other threat.

Pre-Event Actions

To further prepare for a notice event, the following actions may be taken:

- Carry out CISAR operations just before and after the event, as appropriate;
- Issue standby orders;
- Keep all status reports up to date;
- Inform key authorities of intended SAR actions;
- Prepare the IC;
- Review and brief reporting procedures;
- Support CISAR aircraft, boats, and response team logistics requirements;
- Ensure that no SAR C2 issues are left unresolved;
- Implement plans for supplemental personnel and resources;
- Pre-position CISAR responders;
- Ensure that charts, grids, and other essential mission enabling function information of the geographic region are available for use by CISAR responders – update and utilize daily Special Instructions (SPINS);
- Determine what Temporary Flight Restrictions (TFRs) will be required;
- If the use of CISAR aviation resources is anticipated, coordinate with the FAA on the need for enabling air traffic and airspace management measures, including TFRs, and an overarching contingency air mission and airspace management plan;
- Ensure that the evacuation of personnel and equipment is implemented that would otherwise compound subsequent CISAR operations;
- Identify and ensure that SCPs and other places of safety are ready;
- Ensure geospatial datasets are accurate and synchronized with Federal, State, Tribal, and Territorial/Insular Area plans; and
- Identify and utilize collaborative mission management tools to increase situation awareness and data sharing to increase response effectiveness.

Section 2-6: SAR Mission Coordinator (SMC)

As discussed in Section 2-1, the SMC is the person responsible in the Incident Command for coordinating, directing, and supervising CISAR operations. As a reminder, the SMC is staffed to the SAR Branch of the Operations Section.

SMC is an extremely challenging position, responsible for coordinating time-critical, life-or-death ESF #9 aircraft, boat, and response team SAR operations throughout the affected area. It is the SMC who ensures that Federal, State, Tribal, Territorial/Insular Area, and local SAR assets conduct effective, efficient, and coordinated CISAR operations in a safe manner.

Who is SMC?

Federal department and agency CISAR responders normally conduct CISAR operations at the request of the State, Tribe, or Territory/Insular Area. As such, the SMC responsible for overall management of CISAR operations is a representative or organization from the respective State, Tribe, or Territory/Insular Area that requested Federal assistance.

SMC Success: CISAR Mission Planners Working Together

A critical aspect of SAR planning that helps mitigate the complex coordination of CISAR resources is to have each participating agency support the SMC. Only through a coordinated team effort between the SMC and the participating agencies will CISAR operations be safely managed. The formation of a State SMC-led, fully integrated CISAR Mission Coordination Center has proven extremely effective toward SMC management and synchronizing operations.

The SMC is responsible for the coordinated CISAR response, but from beginning to end, it must be a team effort with all Federal, State, Tribal, Territorial/Insular Area, and local SAR agencies participating.

Additionally, ESF #9 operations will not happen in a vacuum. The SMC must ensure SAR mission planning is coordinated with other ESFs, as required.

CISAR operations and lifesaving must take precedence. However, logistics, media, medical services, air traffic coordination, and other critical events will also be ongoing. These other events must be considered when conducting CISAR mission planning.

In exceptional circumstances, when Federal Agencies are required to conduct CISAR operations

without a State, Tribal, or Territorial/Insular Area request for assistance, FEMA will designate which agency will function as the ESF #9 OPA. The OPA will then ensure an SMC is appointed to coordinate the on-scene CISAR response, with all other agencies providing support.

General Guidelines

Lifesaving CISAR operations are time critical. Therefore, the SMC should be identified early, as well as be knowledgeable in SAR response planning and operations.

The SMC should plan for the worst when considering the complexity of CISAR operations, particularly when determining resource requirements. Then as circumstances dictate and more information is obtained, the SMC should adjust and refine resource requirements as required.

Federal CISAR responders will follow their respective agency policies concerning the conduct of CISAR operations. If a SAR resource is unable to conduct a particular SAR mission, other available resources will be considered in keeping with individual agency policy, risk assessment, and safety.

CISAR operations can be accomplished both day and night, depending on resource, type of incident, weather, circumstances, agency-specific policies, and procedures, etc. However, extreme care must be exercised while conducting nighttime CISAR operations. SMCs should ensure that CISAR responders understand their respective missions, conduct proper risk assessment, and have an appropriate plan in place to conduct and manage the operation in a safe manner. There is always risk, but knowing and mitigating the risks associated with a particular CISAR operation will help maximize the CISAR responder's safety.

SMC Duties

The following is a list of SMC duties that should be considered during CISAR operations. The list is not all-inclusive; each CISAR operation will have its own unique challenges that will need to be addressed.

Under the direction of the Incident Commander, the SMC should be:

- In charge of the CISAR operation until efforts are terminated or suspended by the Incident Commander;
- Familiar with NIMS/ICS and be experienced in coordinating large scale SAR operations;
- Well-trained in SAR planning and execution procedures;
- Thoroughly familiar with the respective State, Tribal, or Territorial/Insular Area SAR plan;
- Responsive to safety or capability concerns raised by CISAR responders (aviation, boat, response teams) and modify SAR mission plans as appropriate; and

- Familiar with the geo-referencing matrix (see Section 2-10: Geo-Referencing) to ensure effective communication of position information between CISAR responders and the Incident Command.

Additionally, the SMC should:

- Coordinate and disseminate SAR planning information to all responders – particularly out-of-area and unfamiliar responders – and develop and disseminate to responders via Special Instructions.
- Develop Search Action Plans and Rescue Action Plans;
- Dispatch CISAR responders;
- Assign one or more OSCs and ACOs, as required;
- Not hesitate to ask for any additional SAR resources required to accomplish CISAR operations;
- Optimize the use of available CISAR resources and coordinate the provision of necessary supplies and other support equipment;
- Obtain and evaluate all information concerning the CISAR response;
- Re-evaluate any new information manage and modify the CISAR operations plan, reassigning CISAR responders as appropriate;
- Assess CISAR operational risk and continue to do so throughout the operation (see Section 3-1: Risk Assessment);
- Remain informed on prevailing environmental conditions;
- Identify each area to be searched, decide on methods and SAR facilities to be used;
- Develop and implement a SAR Airspace Management Plan – ensure that aircraft can safely operate within the AO / disaster area;
- Develop and disseminate airfield and fueling status information matrix
- Ensure aircraft can coordinate operations amongst themselves and with response team/boat SAR facilities;
- Identify and request activation of SCPs;
- Request daily Hospital Status matrix and access information from ESF #8;
- Coordinate animal rescue and reception with State Veterinarian – ensure responders aware of established policy;
- Identify communication frequencies to be used by CISAR responders and develop an all-domain compatible communications plan (ICS 205);
- Ensure effective communications procedures are in place to coordinate CISAR responders;
- Ensure CISAR responders are aware of other ongoing response efforts and can coordinate

operations between themselves;

- Arrange for briefing/debriefing of CISAR personnel;
- Evaluate reports from any source and modify SAR plans as necessary;
- Ensure fueling of aircraft is arranged;
- Ensure the care, logistics, and medical support of survivors is arranged;
- Arrange for and coordinate the use of SCPs and places of safety with appropriate authorities;
- Account for all rescued survivors until delivered to a place of safety, and for all passengers and crew if the event is a transportation incident;
- Ensure the IC remains informed on the status of ongoing CISAR operations;
- Ensure CISAR mission progress is provided to public affairs personnel; and
- Terminate or suspend search operations if further efforts are unlikely to be successful.

SMC Briefings

The SMC should conduct briefings prior to launching or diverting resources for a particular CISAR mission. CISAR personnel should be given relevant details of the mission and any instructions for mission coordination. The briefing, at a minimum, should discuss the mission objective and all foreseeable hazards that might be encountered by the responding units. Known risks may include, but are not limited to:

- Hazardous weather;
- Poor visibility;
- Hazardous conditions for CISAR responders (aviation, boat, team, etc.); and
- Any problems that may be encountered for a particular mission.

Section 2-7: CISAR Searches

The search terms discussed in the following paragraphs are particularly useful during CISAR operations involving populated land or flooded areas and are familiar to most State, Tribal, Territorial/Insular Area, and local CISAR responders. Federal CISAR responders should be familiar with and use these terms and concepts as well.⁴

SAR responders attempt to conduct as many rescues as possible while the search operations continue. CISAR aircraft, boats, and response teams may need to continually switch between conducting search operations and rescue operations, especially during the hasty search when many persons are in distress.

Most CISAR search operations generally progress through a sequence of hasty, primary, and secondary searching. Search Phases may overlap or vary within different portions of the overall search area. These increasing levels of search planning are customarily involved as searching progresses to the primary and then to the secondary phases.

RECON Search

Reconnaissance searches are preliminary surveys of the area to assess the extent and severity an incident may be.

Hasty Search

Hasty search is an umbrella term that covers a variety of search activities. Other terms for hasty search include “rapid” search or “initial reflex” search, depending on the background and training of the CISAR responders involved. Additional terms are also used by some CISAR responders to describe certain aspects of hasty searches, such as “spot” searches and “smart” searches. Emergency plans may provide additional guidance on what search phases may overlap or vary within terms to use when CISAR responders from various organizations and levels of government are working together for a particular incident.

A hasty search is conducted as soon as possible to:

- Save as many lives as quickly as possible;
- Target high probability locations for searching;
- Quickly sweep targeted areas to find survivors; and

⁴ These search terms are not normally used for national or international civil SAR; nor for CISAR operations involving aeronautical or maritime distress situations.

- Help determine the scope, nature, and magnitude of CISAR operations.

The time required for a hasty search will depend on factors such as available search resources, challenges inherent in the search area, and the number and needs of survivors. The SAR objective for a hasty search is completion within 24 hours.

The hasty search typically involves a fast-paced visual inspection of the area accompanied by vocal or audio hailing. This may be an air effort with surface units called in as necessary, or vice versa. The search can be compared to medical triage when it helps prioritize initial efforts in an expansive situation.

Search tactics may include:

- *Trolling*: zigzag area search with additional aircraft in trail;
- *Spot Search*: visual scan for survivors starting at a point followed by expanding squares;
- *Sound Sweep*: loud hailers and sound of aircraft bring people out; and
- *Quick scans*: conducted around structures and in selected voids.

Reconnaissance

Particularly if no area assessments were conducted before CISAR aircraft, boats, and response teams arrive on scene, CISAR responders should conduct reconnaissance and assessments throughout the hasty search. Reconnaissance is used to influence immediate and future SAR efforts and provide information to the IC that may be pertinent to non-SAR operations, including body recovery. The SMC may designate selected personnel or response teams solely to conduct reconnaissance efforts. The information gained will be used to help prioritize search areas and optimize resource allocation during the more systematic primary and secondary searches.

Primary Search

Following the hasty search, a primary search is conducted (SAR objective for a primary search: completion within 48 hours). The primary search is typically conducted by surface SAR responders supported by aircraft. Primary searches involve complete circumnavigation of buildings and other structures, looking in doors and windows while hailing for survivors and entering buildings where evidence of life and the risk to rescuers is acceptable.

Normally, personnel involved in primary searches have:

- Received some prior or on-the-spot training and instructions;
- Use standard procedures to mark structures searched (see Appendix B: Structural Marking Systems);

- Document the results; and
- Can request aircraft, boat, or ground support to either facilitate their own efforts or remove survivors.

Secondary Search

Following the primary search, a secondary search is used to systematically search enclosed areas, such as each room in a particular building. Forced entry, debris removal, or authorization for entry may be required. Searchers will need instructions on whether they should conduct rescues when they find survivors or provide information to enable others to perform the rescue. In many instances, this will depend on the condition and situation of the survivor.

Probability of Detection

The probability of detecting survivors is affected by factors such as the complexity of the location to be searched, search pace, search team size and capabilities, environmental factors, and available sensors. These variables must be considered when determining the probability that survivors had been in a searched area, they would have been found. This information is critical for trained search planners to optimize use of available search resources during current and subsequent area searches.

Special Response Teams (SRTs)

SRTs may be used, especially during the hasty search, to respond to large concentrations of persons in distress, or persons with special needs in known locations (see Section 3-4: Persons with Special Needs).

These teams may have specialized training or equipment to deal with the anticipated situation to which they are responding, such as medical or law enforcement capabilities.

SRTs should target locations already identified in advance in relevant emergency plans, such as:

- Childcare and school facilities;
- Hospitals, nursing homes, and mental institutions;
- Shelters and marshalling points;
- Prisons and jails; and

- Areas of last refuge (possibly where local first responders will be found).

Human Remains

Discovered human remains are typically documented based on the rules of engagement of the AHJ. They are typically bypassed during hasty and primary searches. Remains recovery should commence concurrently with CISAR secondary searches.

Reluctant Survivors

Response personnel should be aware of the possibility that some survivors will, to various degrees, resist rescue or evacuation efforts, and may pose a threat to rescuers if they think they will be forced to leave.

Notify the Incident Command if this situation occurs.

CISAR personnel should be instructed on how to arrange for human remains recovery as efforts to locate and assist survivors continues (see Section 3-7: Handling of Human Remains).

Section 2-8: Delivery of Survivors

Places of Safety

The IAMSAR manual describes a place of safety as a location where:

- Rescue operations are considered to terminate;
- The lives of survivors are no longer threatened;
- Basic human needs (such as food, shelter, and medical needs) can be met; and
- From which transportation arrangements can be made for the survivors' next or final destination.

Survivor Control Points (SCP) – Also Known As Lily Pads

An SCP is a place of safety. It is an interim stopping point during rescue operations where survivors can be accounted for, possibly have some initial basic needs cared for, and from which they can be transported to a place of safety.

For large numbers of persons in distress, it may be necessary to establish a temporary safe delivery point for intermediate handling of survivors. In major aircraft or marine disasters, a short distance offshore, survivors might be transported to a suitable nearby landing area where a temporary emergency care center could be established. The survivors should be processed, provided with emergency care, and transported to a permanently established emergency care center or a place of safety.

By using a temporary delivery point, a large number of survivors can be evacuated quickly. Secondary CISAR responders can then transfer survivors to medical care centers.

Use of SCPs can help CISAR responders remain focused more on rescue operations and less on transportation.

The term lily pad is used in some agencies instead of SCP but means the same thing.

SCP Services

The following are typical of services that may need to be provided at SCPs:

- Helistops/landing zones;
- Medical triage and first aid;

- Food and shelter;
- Onward movement transportation;
- Law enforcement/force protection;
- Animal containment;
- On Scene Commander capability;
- Communication with the SMC, SAR facilities, and places of safety;
- Refueling arrangements for SAR facilities; and
- Arrangements for food and rest for rescue personnel, and possibly for crew changes.

For the following reasons, planners should consider identifying schools, particularly State controlled public high schools, as a primary source for SCPs:

- *Abundance.* Schools are proportionally dispersed among the populations, both rural and urban. One or more are likely to be close to any incident scene.
- *Landing Zones.* Even in the most congested of urban areas, schools normally afford ample landing areas for helicopters (athletic fields).
- *Sustenance.* Schools have facilities to prepare and/or serve food (cafeterias).
- *Onward Movement.* Schools have large parking lots and pre-existing entry and exit routing that can facilitate organized arrival and departure transport of survivors.

SCPs: State, Tribal, Territorial/Insular Area, and Local Government Responsibility

Large search areas involving large populations may require the use of multiple dispersed locations where SCPs and places of safety for CISAR operations will be established.

State, Tribal, Territorial/Insular Area, or local authorities are normally responsible for the establishment and support of SCPs (if required) and places of safety as well as welfare of the survivors once delivered.

Depending on the extent to which an SCP or place of safety is to be used, a person should be designated to facilitate and oversee services at these support locations.

It is important to avoid, if possible, delivering survivors to locations where their needs for care and further transportation cannot be met.

CISAR authorities are normally responsible for transport of survivors from SCPs to places of safety. However, the IC may assign this responsibility to others. This function can often be planned for and provided by authorities responsible for ESF functions other than ESF #9. Similarly, arrangements must be made to transport survivors with critical medical or other special needs to facilities that can meet these needs.

Relevant State, Tribe, Territory/Insular Area, and local plans should be clear on how this is to be handled.

Other Federal Government Support Responsibilities

In addition to ESF #9, the following ESFs may be pertinent to SCP support operations:

- ESF #1, Transportation;
- ESF #2, Communications;
- ESF #6, Mass Care, Housing, and Human Services;
- ESF #7, Logistics Management and Resource Support;
- ESF #8, Public Health and Medical Services; and
- ESF #13, Public Safety and Security.

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Section 2-9: Communications

Effective communication is required to meet the anticipated needs of CISAR responders, SAR planners, decision makers, the media, and the public. Mobilization, deployment and employment of personnel, equipment, and communications systems will require interagency coordination to ensure timely and accurate information is available to all stakeholders.

Communications Plan

Communications include all written, spoken, and electronic interaction among all audiences based upon their task-related needs. An interagency, all domain, interoperable communications plan is imperative to successful CISAR operations. A comprehensive ICS 205 (Incident Radio Communications Plan) should be developed, vetted among participating agencies, tested, and disseminated as early in the planning process as possible. The SMC should enlist the assistance of both State and Federal ESF #2 Disaster Emergency Communications (DEC) officers to collaborate in developing and managing the communications plan. The SMC should also consider the efforts of Regional Emergency Communications Coordination Working Groups (RECCWGs). RECCWGs exist in each FEMA region; they are co-coordinated by a FEMA coordinator and a state public safety official. They are required to plan for and implement interoperable communications.⁵

An interoperable communications plan:

- Is a necessary part of any CISAR integrated operation;
- Will help to ensure timely and effective communications resources are installed and supported with the appropriate personnel;
- Describes:
 - Who will require interoperable communications capabilities;
 - Who will coordinate frequencies when communication assets from one jurisdiction are brought into another;
 - What will be done with available communications capabilities;
 - How the objectives will be accomplished; and
 - How the success of the communications plan will be measured.
- Should provide for a heavy volume of communication use, as a CISAR incident will normally involve many responding organizations that need to communicate effectively with each other; and

⁵ See 6 USC §575

- Should include objectives, goals, and tools for all communications requirements, including information concerning:
 - Radio communications (terrestrial and satellite, digital and voice, frequencies);
 - Print publications;
 - Online communications;
 - Media and public relations materials; and
 - Signs.

Advance arrangements should be made to link means of interagency communications that are not inherently interoperable. Interagency communications must use standard terminology understood by all CISAR responders.

National Interoperability Field Operations Guide (NIFOG)

Responders at every level of government need a communications plan that effectively addresses interoperable communications for events of any potential scope. Of course, these plans must be supported with arrangements for the communications capabilities prescribed in the plans. The National Interoperability Field Operations Guide (NIFOG) provides a framework for interoperable communications.

The NIFOG is a pocket-sized guide of technical reference material for technicians responsible for communications used in disaster response applications. The NIFOG covers regulations on interoperability, available channels, and commonly used emergency frequencies.

The NIFOG is not a replacement for a communications plan but provides specific guidance and frequencies that may be utilized and included in the development of an interoperable communications plans.

National Interoperability Field Operations Guide (NIFOG)

The NIFOG can be downloaded from the NSARC website.

<https://cglink.uscg.mil/nsarc>

ESF #2 – Communications

FEMA activates ESF #2 when a significant impact to the communications infrastructure is expected or has occurred. When activated, ESF #2 provides communications support to the impacted area, as well as internally to the Unified Coordination Group (UCG) and associated UCG teams. Under ESF #2, FEMA provides communications support to CISAR responders, as well as short-term restoration of government communications.

Other Interoperability Standards

FEMA recommends adoption of the following standards that support interoperability among communications and information management systems:

- ANSI INCITS 398-2005: Information Technology – Common Biometric Exchange Formats Framework (CBEFF);
- IEEE 1512-2006: Standard for Common Incident Management Message Sets for Use by Emergency Management Centers;
- NFPA 1221: Standard for Installation, Maintenance, and Use of Emergency Services Communications Systems;
- OASIS Common Alerting Protocol (CAP) v1.1; and
- OASIS Emergency Data Exchange Language (EDXL) Distribution Element v1.0.

SAR Frequencies

Table 2-8: NIFOG Communications Frequencies lists available NIFOG SAR frequencies broken down across the type of SAR incident.

Table 2-8: NIFOG Communications Frequencies

NIFOG Communications Frequencies	
Type of SAR	Frequencies Available
Land SAR	Typical Frequencies: 155.160, 155.175, 155.205, 155.220, 155.235, 155.265, 155.280 or 155.295 MHz If Continuous Tone-Controlled Squelch Systems (CTCSS) is required, try 127.3 Hz (3A).
Water SAR	156.300 MHz (VHF Marine ch. 06) Safety and SAR; 156.450 (VHF Marine ch. 09) Non-commercial supplementary calling; 156.800 (VHF Marine ch. 16) Distress and calling; 157.100 (VHF Marine ch. 22A) Coast Guard liaison.
Coast Guard Auxiliary	138.475, 142.825, 143.475, 149.200, 150.700 MHz (NB only).
Aeronautical SAR Coast Guard/DOD Joint SAR	3023, 5680, 8364 kHz (lifeboat/survival craft); 4125 kHz (distress/safety with ships and coast stations); 121.5 MHz emergency and distress; 122.9 MHz SAR secondary and training; and 123.1 MHz SAR primary. 243.0 MHz AM initial contact; 282.8 MHz AM working.
Military SAR	40.50 wideband FM U.S. Army/USN SAR; 138.450 AM, 138.750 AM; 121.5 MHz and 243.00 MHz AM USAF SAR
VHF Marine Channels	6, 9, 15, 16, 21A, 23A, 81A, 83A

NOAA Weather Radio

NOAA Weather Radio is a nationwide network of radio stations broadcasting continuous weather information direct from a nearby National Weather Service (NWS) Office. It is an outstanding resource for CISAR responders in obtaining information on a particular disaster.

The network:

- Has more than 1,000 transmitters, covering all 50 States, adjacent coastal waters, Puerto Rico, the U.S. Virgin Islands, and the U.S. Pacific Territories/Insular Areas;
- Broadcasts NWS warnings, watches, forecasts, and other hazard information 24-hours per day;
- Has an average reception range of 40 miles from the transmitter, depending on topography;
- Can broadcast post-event information for all types of hazards – both natural (e.g., earthquakes, hurricanes, volcanoes, etc.) and environmental (e.g., chemical and oil spills);
- Require a special radio receiver or scanner capable of receiving the signal; and
- Are found in the public service band and broadcast on seven frequencies (Table 2-9: NOAA Weather Radio Band).

Table 2-9: NOAA Weather Radio Band

NOAA Weather Radio Band	
Channel	Frequencies
1	162.550
2	162.400
3	162.475
4	162.425
5	162.450
6	162.500
7	162.525

Section 2-10: Geo-Referencing

In the aftermath of Hurricane Katrina, the review of the Federal, military, State, and local SAR response found that SAR agencies used different methods to communicate geographic information. This added confusion and complexity to an extremely large-scale SAR operation.

Federal, State, Tribal, Territorial/Insular Area, local, and volunteer CISAR responders working together in a CISAR environment face numerous challenges, including those relating to a lack of geospatial awareness. Three issues were identified during the Hurricane Katrina response:

- How do CISAR responders navigate when landmarks such as street signs and homes are blown away?
- How do CISAR responders communicate position in a common language?
- CISAR resource de-confliction: the ability to ensure multiple assets are not inappropriately operating in the same area, which can be a significant problem for CISAR responders.

Resource de-confliction is a matter of safety, particularly with aircraft, to ensure the likelihood of a mid-air collision is minimized. Additionally, resource de-confliction is a matter of efficient and effective use of limited resources so that all areas receive appropriate, available CISAR response assets.

Tips for Selecting Geo-Referencing Systems

No single map/chart projection or coordinate/grid system will be perfect for all applications. In the case of projecting the earth's curved surface on a flat surface, distortion of one or more features will occur.

The conventions for locating points on the earth's surface for purposes of nautical and aeronautical navigation (long distances on small-scale charts) is generally best conducted using latitude and longitude (spherical coordinates). Locating points on large-scale maps and for ground navigation is generally best accomplished with Cartesian-style plane coordinates (i.e., USNG). Large-scale maps can treat the Earth's surface as a plane—taking advantage of that simple geometric shape and math—rather than a complex sphere. Properly constructed large-scale maps—such as topographic maps—take curvature of the Earth into account. Simple linear increments (i.e., meters) of plane coordinates are significantly easier for large-scale map users to handle accurately at high-precision in the field than the more complex angular increments of latitude and longitude (i.e., degrees.)

What is Geo-referencing?

To geo-reference is to define location in physical space. It is crucial to making aerial and satellite imagery useful for mapping. Geo-referencing explains how position data (e.g., Global Positioning System (GPS) locations) relate to imagery and to a physical location.

Different maps may use different projection systems. Geo-referencing tools contain methods to combine and overlay these maps with minimum distortion.

Using geo-referencing methods, data obtained from observation or surveying may be given a point of reference from topographic maps already available.

Geo-Referencing Methods

Three geo-referencing methods are to be used for CISAR operations anywhere in the U.S., as indicated in the NSARC geo-referencing matrix located at the end of this Section.

State/local SAR authorities and the local IC may utilize natural landmarks in combination with geo-referencing methods to identify a position, or in some cases by both natural and manmade landmarks (e.g. “Search Red River, from the I-94 bridge, south to latitude forty-six degrees, forty-six decimal zero minutes North”). CISAR planners and responders must adapt to the geo-referencing method used during a CISAR response.

If a SAR responder requests that a position be converted to a particular format, every effort should be made to accommodate the request.

U.S. National Grid (USNG)

The USNG is intended to create a more interoperable environment for developing location-based services within the U.S. and to increase the interoperability of location services appliances with printed map products by establishing a preferred nationally consistent grid reference system.

The USNG system:

- Is the primary geo-referencing source utilized by most State/local fire/rescue and FEMA US&R teams;
- Can be extended for use world-wide as a universal grid reference system, and can be easily plotted on USGS topographic maps by using a simple "read right, then up" method;
- May be used for area gridding, as well as for pinpoint locations.

(Note: the USNG and the Military Grid Reference System (MGRS) are functionally equivalent when referenced to NAD 83 or WGS 84 datums.)

The coordinates are easily translated to distance, as they are in meters. Thus, the distance between two coordinates can quickly be determined in the field.

Figure 2-7: United States National Grid offers a chart highlighting one example of the USNG. The chart is then followed by two information sheets that detail how to read USNG coordinates and how to locate a position using the USNG system.

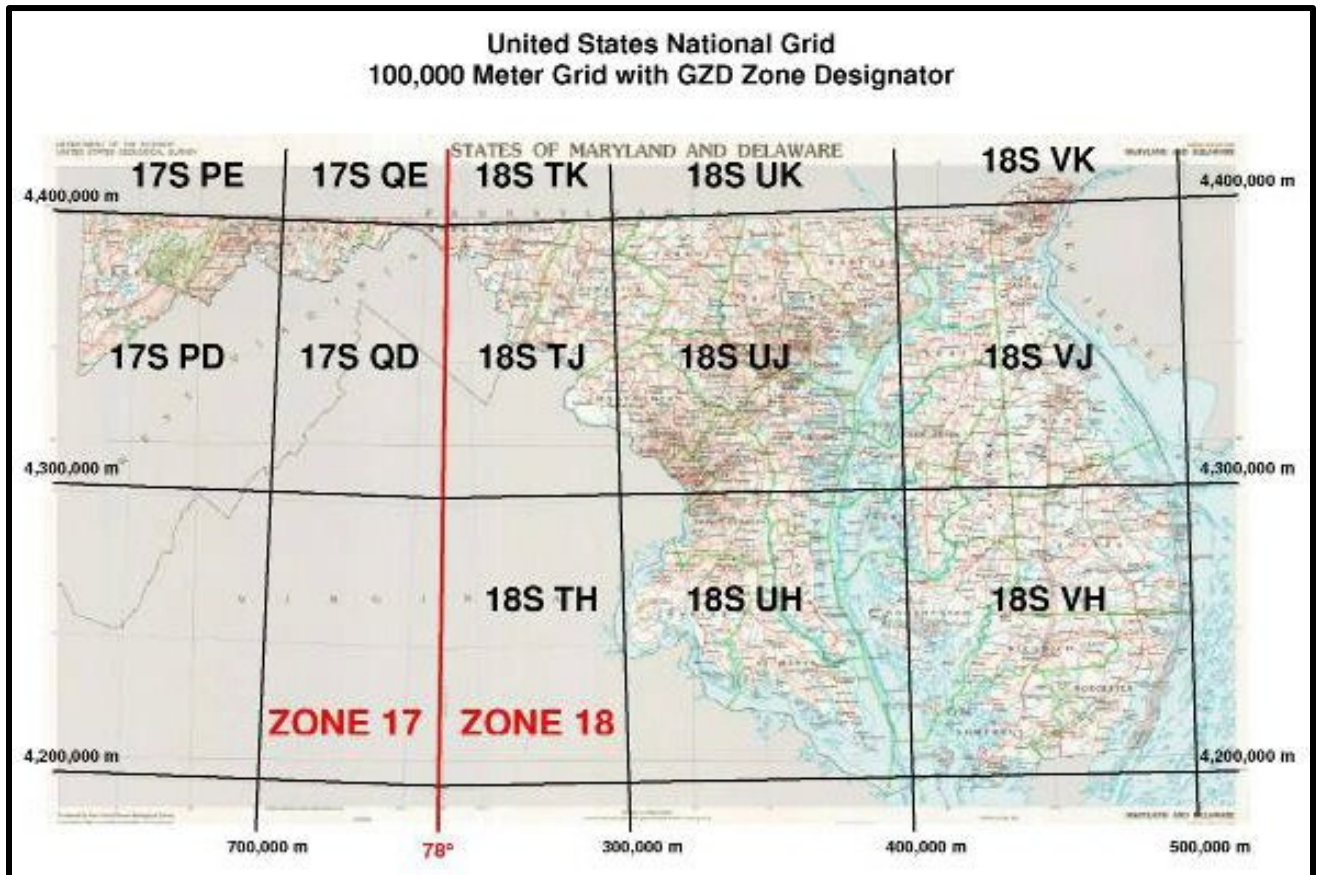


Figure 2-7: United States National Grid

US National Grid (USNG) Coordinates: *World wide context.*

Information Sheet 2/1 in this series.

FGDC-STD-011-2001

From www.fgdc.gov/usng

The example below locates the Jefferson Pier at USNG: 18S UJ 2337 06519.

U.S. National Grid	
100,000-m Square ID	
UJ	43 00
UH	
Grid Zone Designation	18S

A USNG value has three components.

Some maps may give this leading information in a grid reference box.

Grid Zone Designation (GZD):

6° x 8° longitude zone / latitude band.

100,000-m Square Identification:

18S UJ 2337 0651

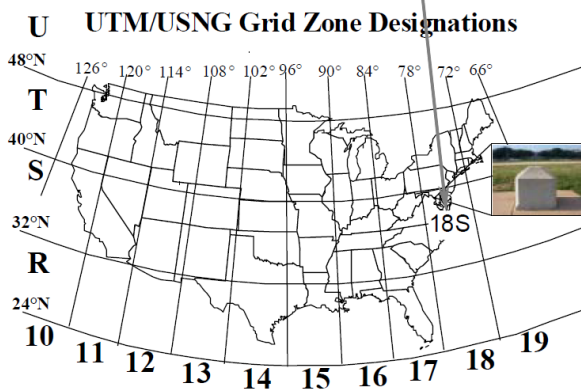
Grid Coordinates:

Read right, then up.

“Read right, then up.”

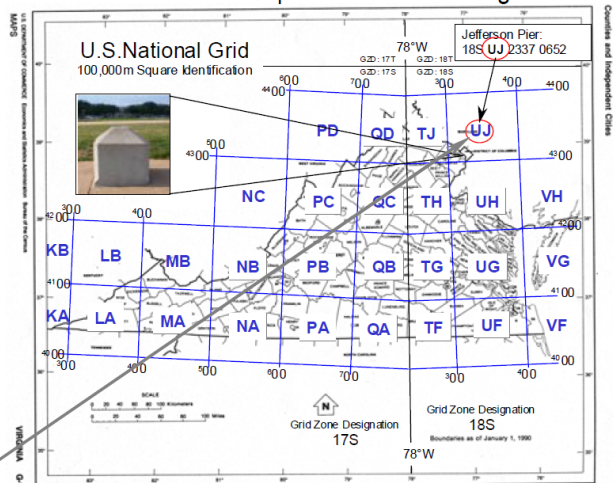
USNG values have three components as seen above. The Grid Zone Designation gives a USNG value world-wide context with 60 longitudinal zones each 6° wide. Zones 10 - 19 cover the conterminous U.S. as seen below left. UTM zones are divided into 8° latitudinal bands. Together these 6° zones and 8° bands compose Grid Zone Designations.

Example: 18S



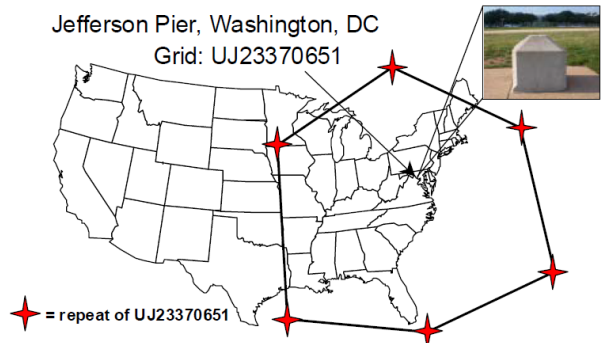
100,000-m Square Identifications
Example: UJ

GZDs are further subdivided into 100-km x 100-km squares with 100,000-m Square Identifications. In this example, the Jefferson Pier is located in UJ. These squares are organized and lettered so they do not repeat themselves but every 18°, which is approximately 1,000 miles in the mid-latitudes. The illustration at right depicts how far one must go before the letters UJ repeat. In the conterminous U.S. this ensures a given value such as UJ 2337 0651 is unique out of the entire state it is located in – as well as all surrounding states.



The Power of Truncated USNG Values

Jefferson Pier, Washington, DC
Grid: UJ23370651



Each 2 letter/8 digit USNG value
(10-m posting) in the outlined area is unique.

In general, people in a local community may use the grid coordinates alone – for example: 233 065. The same numbers recurs about every 60 miles but normally that will not cause a problem when the general location is understood. This is similar to the way you tell someone only the last digits of a phone number when the area code is obvious. If there is a possibility of confusion include the letter pair also – for example: UJ 233 065. A letter pair recurs about every 1000 miles so even in a disaster relief effort there should be no other point with those coordinates nearby. A complete USNG reference such as 18S UJ 233 065 is nationally and globally unique. Typically a GPS receiver or other electronic device requires a complete USNG reference since unlike a human it does not intuitively understand the general location from context. You should always give a complete USNG reference whenever abbreviated coordinates might not be clear or when listing them on letterhead, a business card or advertisement.

Ed: 20080420-USNGInstruct No2, page 1 of 2

Reading US National Grid (USNG) Coordinates: "Read right, then up."

Information Sheet 2/2 in this series.

FGDC-STD-011-2001

From www.fgdc.gov/usng

The example below locates the Jefferson Pier at USNG: 18S UJ 23371 06519.

U.S. National Grid	
100,000-m Square ID	
UJ	
UH	⁴³ 00
Grid Zone Designation	18S

A USNG value has three components.

Some maps may give this leading information in a grid reference box.

Grid Zone Designation (GZD):

6° x 8° longitude zone / latitude band.

100,000-m Square Identification:

18S UJ 2337 0651

Grid Coordinates:

Read right, then up.

"Read right, then up."

- Grid lines are identified by **Principal Digits**. Ignore the small superscript numbers like those in the lower left corner of this map.

Reading USNG Grid Coordinates.

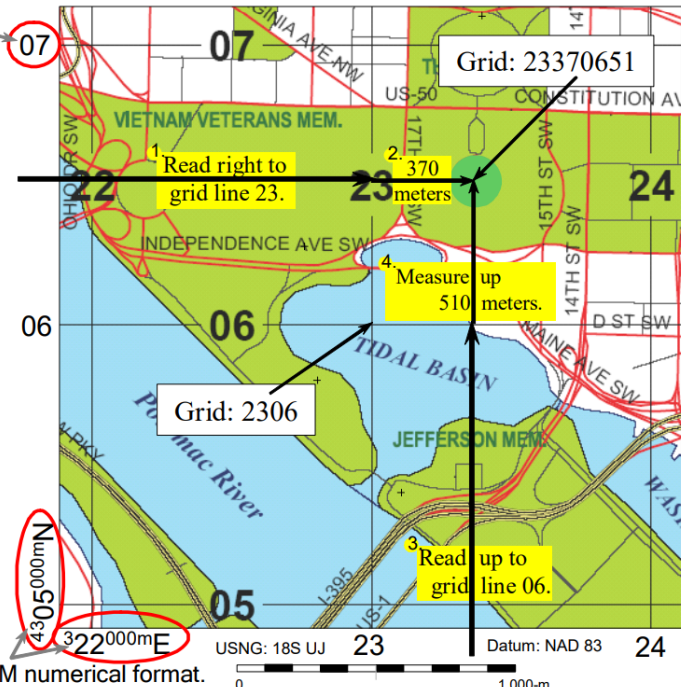
- Coordinates are always given as an even number of digits (i.e. 23370651).

- Separate coordinates in half (2337 0651) into the easting and northing components.

1 - Read right to grid line 23. 2 - Then measure right another 370 meters. (Think 23.37)

3 - Read up to grid line 06. 4 - Then measure up another 510 meters. (Think 06.51)

Grid:	Point of Interest:	
228058	FDR Memorial:	+
231054	George Mason Memorial:	+
2338 0710	Zero Milestone:	+
2275 0628	DC War Memorial:	+
222065	Lincoln Memorial:	



Ignore the small UTM superscript numbers that are provided for reference purposes. UTM numerical values are best suited for determining direction and distance as in surveying. USNG alpha-numeric values are best suited for position referencing because they can be given as only grid coordinates in a local area and with only the required precision for a particular task.

Users determine the required precision. These values represent a point position (southwest corner) for an area of refinement.	Four digits:	23 06	Locating a point within a 1,000-m square.
	Six digits:	233 065	Locating a point within a 100-m square (football field size).
	Eight digits:	2337 0651	Locating a point within a 10-m square (modest size home).
	Ten digits:	23371 06519	Locating a point within a 1-m square (man hole size).

A modest size home can be found or identified in a local area with only an 8-digit grid.

Complete USNG value: 18S UJ 2337 0651 - Globally unique.
 Without Grid Zone Designation (GZD): UJ 2337 0651 - Regional areas.
 Without GZD and 100,000-m Square ID: 2337 0651 - Local areas.

This illustrates how nationally consistent USNG coordinates are optimized for local applications. They serve as a universal map index value in a phone or incident directory for field operation locations. Unlike classic atlas grids (i.e. B3), these can be used with any paper map or atlas depicting the national grid and in web map portals such as the Washington, DC GIS (<http://dcgis.dc.gov>).

They can also be used in consumer GPS receivers to directly guide you to the location. This is especially beneficial at night, in heavy traffic, or major disasters when street signs are missing.



Point of Interest	Street Address	USNG Grid:	Telephone:
		18S UJ	(202)
Subway Sandwich & Salads	2030 M St., NW	2256 0826	223-2587
Subway Sandwich & Salads	430 8th St., SE	2698 0567	547-8200
Subway Sandwich & Salads	3504 12th St., NE	2740 1120	526-5999
Subway Sandwich & Salads	1500 Benning Rd, NE	2815 0757	388-0421

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Latitude-Longitude

Latitude and Longitude is used by aircraft and boats during CISAR operations. The Latitude-Longitude is a geographic coordinate system used for locating positions on the Earth's surface. Latitude and longitude are an angular measurement in degrees (using the symbol, “ ° ”), minutes (using the apostrophe symbol, “ ’ ”), and seconds (using the quotation symbol, “ ″ ”).

Lines of Latitude are horizontal lines shown running east-to-west on maps and are known as “Parallels,” due to being parallel to the equator. Latitude is measured north and south ranging from 0° at the Equator to 90° at the poles (90° N for the North Pole and 90° S for the South Pole).

Lines of Longitude are vertical lines shown running north and south on maps and are known as “Meridians,” intersecting at the poles. Longitude is measured east and west ranging from 0° at the prime meridian to +180° East and -180° West (Figure 2-8: Latitude and Longitude).

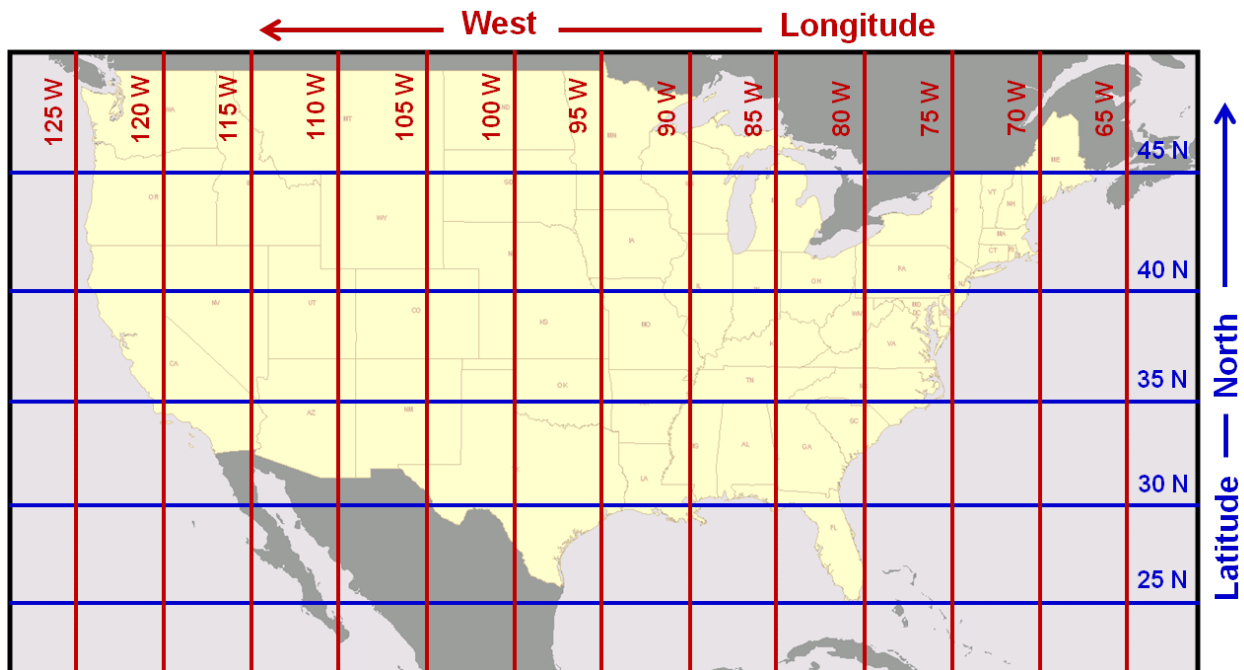


Figure 2-8: Latitude and Longitude

Latitude and Longitude can be read and written in three different formats:

- Degrees, Minutes, Decimal Minutes (DD° MM.mm’);
- Degrees, Decimal Degrees (DD.DDDD°); and
- Degrees, Minutes, Seconds (DD° MM’ SS’’).

When geo-referencing in Latitude and Longitude, be cautious in reading and receiving coordinates. As illustrated above, some users define location using degrees, minutes, and seconds. Although the error is usually small, it can (and has) meant the difference in a timely SAR response.

Confirm the coordinates if unsure of the format in which they are being communicated. Speaking Latitude and Longitude should also be spoken in a standardized format (below).

Standard Latitude/Longitude Format for CISAR Operations

The standard Latitude/Longitude format for CISAR operations is Degrees, Decimal Minutes (DD° MM.mm').

Latitude is always read and written first noting "North" since the U.S. is North of the Equator. Longitude is always read and written last noting "West" since the U.S. is West of the Prime Meridian.

Speaking Latitude and Longitude

For example, 39° 36.06'N by 76° 51.42'W, should be stated as per the following:

"Three nine degrees, three six decimal zero six minutes North by seven six degrees, five one decimal four two minutes West."

The words, "degrees," "minutes," and "decimal" must be spoken.

Geo-referencing Matrix

A fundamental requirement for a geo-reference system is the ability to easily interface between the Incident Command, the land CISAR responder (or maritime CISAR responder) and the aeronautical CISAR responder. Because each has unique geo-referencing requirements, effective interface between each component is vital to a successful CISAR response.

Map Datum

North American Datum 1983 (NAD 83) and World Geodetic System 1984 (WGS 84) are equivalent at scales smaller than 1:5000.

The geo-referencing matrix (Table 2-10: CISAR Geo-referencing Matrix) minimizes confusion and provides guidance on what geo-referencing system each CISAR responder should be using.

Table 2-10: CISAR Geo-referencing Matrix

CISAR Geo-referencing Matrix		
Geo-reference System User	United States National Grid (USNG)	Latitude/Longitude DD-MM.mm⁶
Land SAR Responder ⁷	Primary	Secondary
Aeronautical SAR Responders ⁸	Secondary	Primary
Air Space Deconfliction ⁹	N/A	Primary
Land SAR Responder/Aeronautical SAR Responder Interface. ¹⁰	Primary	Secondary
Incident Command: Air SAR Coordination Land SAR Coordination	Secondary Primary	Primary Secondary

⁶ During CISAR operations (and to avoid confusion) Latitude and Longitude should be in one standard format: DD-MM.mm. If required, use up to 2 digits to the right of the decimal. If required, allow 3 digits in the degrees field for longitude (i.e., DDD-MM.mm). Do not use leading zeros to the left of the decimal for degrees or minutes that require fewer than the maximum number of possible digits to express their value. The minimum number of digits is always one, even if it is a zero. (Example: Recommended: 39° 36.6'N 76° 51.42'W; Not Recommended: 39° 36.600'N 076° 51.420'W).

⁷ Land SAR responders use U.S. National Grid. However, a good familiarity with latitude and longitude is necessary to ensure effective interface between Land and Aeronautical SAR responders (Note: Land SAR includes SAR on flooded terrain).

⁸ Aeronautical SAR responders will use latitude and longitude for CISAR response. However, aeronautical SAR responders that work directly with Land SAR responders should understand the U.S. National Grid system for effective Land SAR/Aeronautical SAR interface.

⁹ Air space deconfliction will only be implemented and managed using Latitude and Longitude.

¹⁰ Aeronautical SAR responders working with Land SAR responders have the primary responsibility of coordinating SAR using USNG. However, both groups must become familiar with both georeferencing systems.

Section 2-11: Aircraft Management

A key element in conducting safe CISAR operations is effective and safe management of aviation resources. The confluence of many helicopters and fixed-wing aircraft conducting multiple sorties in a complex and congested environment increases the risk of mid-air collision. CISAR planners must be able to coordinate CISAR aircraft and ground responders to ensure their effective use and safety of each.

While each disaster presents a unique set of circumstances, the ability of response agencies to conduct these contingency aviation operations safely and effectively consistently faces several key challenges, including the variables listed below:

- Air Traffic Management (ATM) and other Air Navigation Services (ANS) such as communications, navigational aids, and surveillance (e.g. radar) normally provided by the Federal Aviation Administration (FAA) may be disrupted or otherwise degraded;
- In addition to their ANS shortfalls, airports and airfields that need to be used as aviation enabled response and recovery nodes may have constrained capacity and/or Maximum on Ground (MOG) levels due to unavailable or degraded airport operations, including aircraft ground support services such as refueling, passenger/cargo handling, security, etc.;
- Large numbers of low altitude air missions (e.g., CISAR flights) may be needed, necessitating these aircraft to operate under Visual Flight Rules (VFR) and in Visual Meteorological Conditions (VMC);
- A diverse mix of rotary wing and fixed wing platforms, as well as Unmanned Aircraft Systems (UAS), is often used to support response efforts;
- Response air missions are frequently carried out by multiple operators from different Federal, State, Tribal, Territorial/Insular Area, and local agencies, using aircrews, who may be unfamiliar with the disaster area and conducting contingency flight operations with each other;
- Air mission tasking may be carried out through agency specific command-and- control channels complicating unified management of aviation operations in the disaster area;
- Air missions may be conducted using private contractor operators, which could have unclear coordination links to the aviation operations management mechanisms used by the IC; and
- So as not to impede access to National Airspace System (NAS) operations, aircraft not participating in response activities (e.g., General Aviation (GA) and commercial carriers) may need and be authorized to access the airspace over the disaster area as part of the FAA's mandated effort to mitigate, recover and resume normal NAS operations.

The above constraining factors are frequently present during disasters in combination and amplified by the consistent need to conduct response flights in a shared volume of airspace.

Air Operations Branch (AOB)

NIMS provides for the optional establishment of an AOB. The Operations Section Chief of the Incident/Unified Command (IC/UC) may establish an AOB if:

- Warranted by the nature of the incident and the availability of air assets;
- The complexity of air operations requires additional support and effort; or
- The incident requires mixing tactical and logistical use of helicopters and other aircraft.

The AOB:

- Oversees all aircraft operations related to the incident, not just operation of CISAR response aircraft;
- Should be staffed with a supervisor, a tactical group, helicopter coordinator, fixed-wing coordinator, and other staff as required;
- Establishes and operates bases for rotary-wing air assets and maintains required liaison with off-incident fixed-wing bases;
- Is responsible for timekeeping of aviation assets assigned to the incident;
- Should coordinate with the deployed FAA operations liaison officer (LNO) to the AOB/State EOC and the FAA Airspace Access Response Cell (AARC) to request approval to enter TFR airspace and to ensure compliance with any flight restrictions and/or special instructions; and
- Should obtain from the deployed FAA LNO or the AARC a discrete beacon code for those aircraft requesting to fly into the TFR airspace.

CISAR Aircraft Coordinator (ACO)

In addition to the AOB, the SMC may assign an Aircraft Coordinator (ACO) to help maintain safe and effective use of aircraft involved in CISAR operations.

An ACO:

- Is the person, team, or facility that will coordinate multiple aircraft in CISAR operations in support of the SMC or OSC;
- Is a supporting and advisory service;
- Must be familiar with planning and conducting search operations using several aircraft;

- Will normally be performed by the facility with the most suitable mix of communications, radar, and plotting capability combined with trained personnel to effectively coordinate the involvement of multiple aircraft in CISAR operations while maintaining flight safety; and
- Should perform aircraft coordination duties at the most effective location (e.g., Incident Command, EOC, fixed- wing aircraft, ship, etc.).

Depending on needs and qualifications, the ACO may be assigned duties that include:

- Coordinating the airborne CISAR resources in a defined geographical area;
- Maintaining flight safety – issue flight information;
- Ensuring flow planning (e.g., aircraft point of entry and point of exit);
- Prioritizing and allocate tasks; and
- Coordinating the coverage of assigned search areas;
- Ensuring aircraft communications are maintained;
- Making consolidated situation reports (SITREPs) to the SMC and OSC, as appropriate.

Normally, the ACO would be located with the SMC in the SAR Branch of the Operations Section but may also work in the AOB if one is established. The ACO's focus is on CISAR response aircraft. Obviously, ACO duties will have to be closely coordinated with the AOB.

Figure 2-9: Typical Air Operations Organization with SAR Branch shows a typical organizational structure for SAR air operations with the utilization of an AOB.

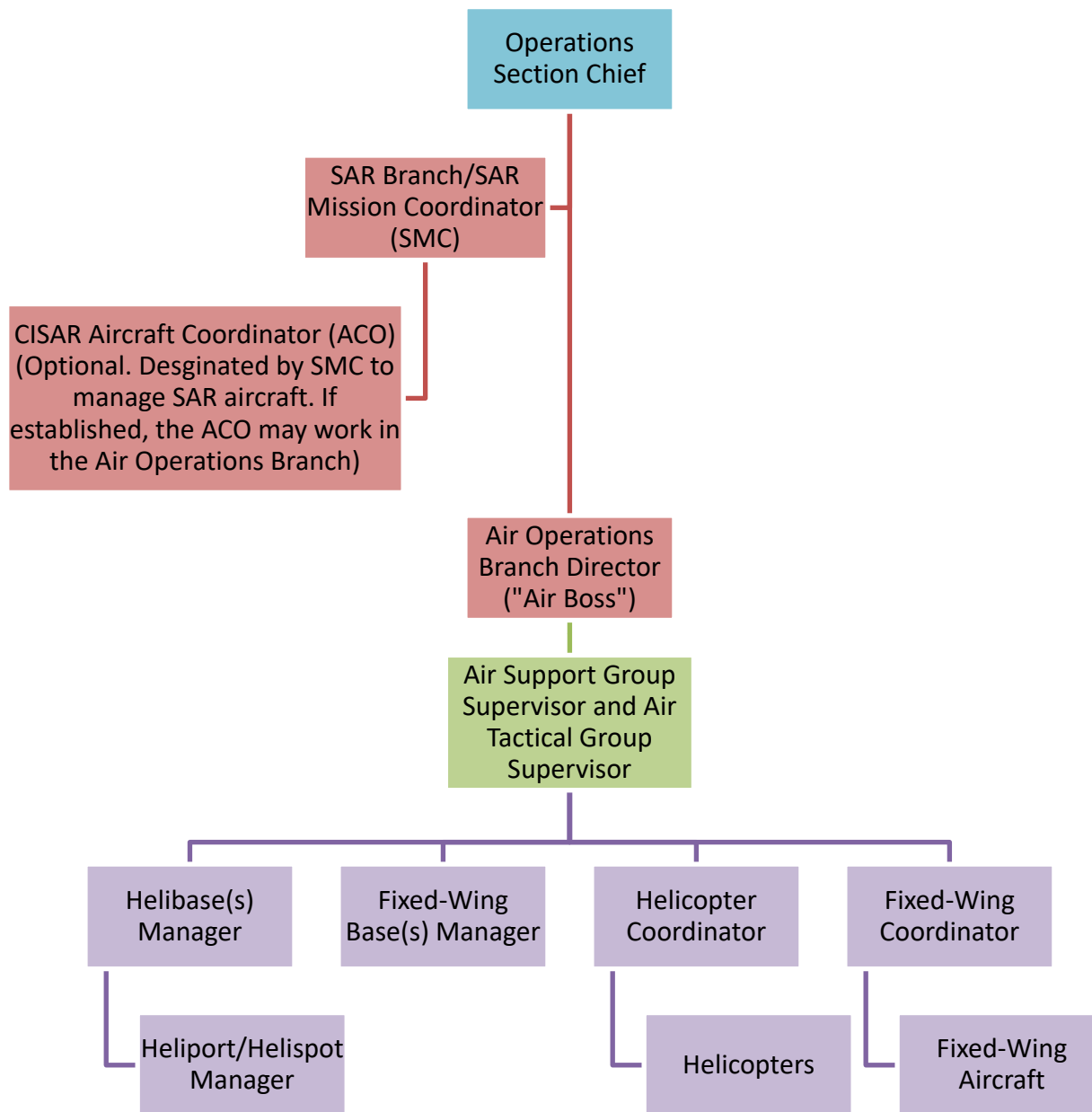


Figure 2-9: Typical Air Operations Organization with SAR Branch

Use of Aircraft for CISAR Operations

Lifesaving has priority over all other aircraft missions. Delivery of vital supplies (e.g., water, medical supplies) may also become an additional priority.

CISAR response aircraft can quickly search large areas, intercept, and escort aircraft or other CISAR response units, and perform aerial delivery of supplies, equipment, and personnel.

The aircraft pilot will always make the final determination as to whether the aircraft can perform the assigned mission.

The SMC/OSC/ACO should be aware of the specifications of the aircraft being used during CISAR operations to make informed decisions when allocating CISAR aircraft resources.

CISAR aircraft pilots should carefully evaluate the SAR action plan to ensure pattern orientation for the assigned search area and those for adjacent assignments meet safety requirements and provide the best opportunity for detecting the search object. The SMC must be notified immediately upon discovery of any safety issues and should be notified of all other apparent deficiencies as early as practicable.

When planning aircraft search areas, consider the following:

- Orientation of aircraft search patterns and CSP placement is based on safety, aircraft endurance, navigation, environmental conditions, available resources, and any other factors critical to the CISAR operation.
- If a systematic search of a particular area is conducted, the aircraft's CSP should be placed close to the point of the aircraft's departure location to facilitate the start of the search effort.

Risk Management

The IC, SMC, ACO, OSC and aircraft commanders continuously make operational decisions during CISAR operations. As missions progress, each must weigh and continually reassess the urgency of the mission and the benefits to be gained versus the risks involved. The safety of the aircrew and aircraft must always be one of the primary considerations for planning and conducting aviation missions.

For CISAR operations, potential risks to the aircraft and crew should be weighed against risks to the personnel and/or property in distress if the mission is not undertaken. Probable loss of the aircrew is not an acceptable risk.

(Note: A different CSP may be designated to take into consideration factors such as the aircraft's next destination, mission, fuel replenishment location, etc.)

- When planning an aircraft search pattern, consider the location of the sun, especially early and late in the day. Looking into the sun can make detection of people in distress difficult.

Aircrew Fatigue

Physical factors impact the ability of flight crews to exercise good judgment. Chief among those factors is fatigue.

Stressors such as constant vibration, loud noises from machinery and radios, illness, poor physical conditioning, improper diet, and irregular or insufficient sleep patterns can create both acute and chronic fatigue.

Most aviation units and organizations have developed crew standards that protect personnel while maximizing support for the CISAR operation. Agency specific fatigue standards must be adhered to.

Flight Safety

Flight safety is of paramount concern in complex CISAR operations and must be considered in mission planning.

For aviation safety to be truly effective, safety must be a pervasive notion supported at all levels of the Incident Command.

Most aviation mishaps are preventable and usually the result of human error, mechanical failure, or combination of both. Most mechanical failures may be attributed to a human error at some point, either in the design, maintenance, or operation of equipment.

If mishaps are to be prevented, it is necessary to detect and guard against human error at every stage of an air operation. This requires a continuous review and communication between all activities affecting aviation operations and maintenance so that mistakes or potential mistakes can be identified, evaluated, and corrected.

During CISAR operations, where hazards to aircraft safety can and will occur, these hazards must be identified and effectively reduced or eliminated, to minimize the potential for a mishap and ensuring the aircraft's continued operational availability.

Everyone connected with air operations, whether in an operational or supporting role (e.g., aircrew, scheduling, maintenance), contributes directly to the effectiveness of aviation safety. Effective safety is a team effort and requires the active participation of "all hands".

Aircraft Prioritization

Aircraft mission prioritization, a responsibility of the IC, is critical to an effective incident response. Normally, CISAR and other lifesaving missions should be considered the priority.

A prioritization example is in Table 2-11: Example Aircraft Prioritization Based on Mission.

Table 2-11: Example Aircraft Prioritization Based on Mission

Example Aircraft Prioritization Based on Mission	
Priority	Missions
Priority 1: Direct lifesaving operations	<ul style="list-style-type: none"> • CISAR; • Incident Awareness and Assessment; • Evacuation; • Medical Response (Pre-hospital Medical Response); • Patient Movement; • Aero-Medical Evacuation; and • Air Ambulance. <p><i>(Note: In Priority 1, the rescue of persons in distress must be the highest priority)</i></p>
Priority 2: Direct life sustaining, damage prevention, support and enabling tasks	<ul style="list-style-type: none"> • C2/Incident Management; • Security; • Medical Response (e.g., DMAT - Disaster Medical Assistance Teams); • Life sustaining commodities distribution; • Firefighting; • Airfield opening; • Levy and infrastructure repair; and • Mission critical personnel movement.
Priority 3: Other response-related missions	<ul style="list-style-type: none"> • Non-mission critical personnel movement; • Non-time critical logistics distribution; and • Direct response support missions.
Priority 4: Other mission on non- interference basis	<ul style="list-style-type: none"> • News; • Other non-critical movements; and • Recovery Missions.

Helicopters

For planning purposes, helicopters are generally excellent SAR platforms capable of recovering persons from a wide variety of distress situations on land and water.

Helicopters involved in SAR operations should generally have some or all the following capabilities:

- Wide area and hover search;
- Hoisting/winching;
- Marking (e.g., smoke, sea dye, flares, etc.);
- EMT/rescue swimmer/para-rescuemen delivery;
- Delivery of survivors/equipment;
- Confined area landing;
- Direction finding;
- Night illumination;
- Search sensors; and
- C2/incident awareness and assessment.

Section 2-12: Boat Operations Management

In many instances, boat operations are a vital part of CISAR operations. Responses from the water presents unique challenges and major safety concerns for boat crews. CISAR boat operations are usually required for flooding incidents or large passenger ship disasters. Boat crews must be familiar with best practices and lessons learned from past incidents to ensure safe and effective boat operations.

Boat Operations Branch (BOB)

NIMS outlines the optional establishment of a Boat Operations Branch (BOB). The Operations Section Chief of the Incident/Unified Command may establish a BOB as warranted by the nature of the incident and availability of assets and personnel.

The BOB would oversee boat operations related to the overall incident, not just CISAR operations.

To enhance SAR operational efficiency and effectiveness (the right resource, to the right place, at the right time), the IC/SMC may consider consolidating boat, land, and aviation operations within a State/Federal Unified Air Marine Operations Branch as an all-domain integrated SAR Branch to the Operations Section.

Health and Safety

CISAR responders on the water may face serious health concerns. Awareness and preparation can help to avoid serious injury or illness. As the response progresses, keep in mind the following:

- Two boat teams should be assigned to work together to support mutual safety requirements;
- In the event of a flood, sewage, and waste flow freely into the waterways exposing boat crews to possible disease and contamination;
- Boat crews must be cognizant of unsanitary vessel spray and water splash;
- Boat crewmembers must be dressed in appropriate protective equipment and remain aware of potential unsanitary conditions when maneuvering or choosing a safe operating speed;
- Special consideration concerning vessel spray should be taken when operating airboats in an unsanitary environment;
- For missions where contaminants or waste are known, crews should be made aware of

associated or prevalent diseases and be able to recognize symptoms;

- Responding to incidents that involve victims who have been exposed to hazardous materials, boat crews should be properly protected and exercise their duties with caution;
- To help boat crews avoid heat exhaustion, dehydration, and exhaustion, boats should be stocked with plenty of fresh water and food;
- Because boats may operate in difficult environments for extended periods of time, a duty rotation should be implemented to ensure crews do not become overly fatigued; and
- Response personnel should be aware that deceased persons may pose potential health risks.

Boat Operations

In certain situations, such as flooding or extreme weather conditions, the altered environment will present unique challenges:

- Flooding can adversely impact land transportation by destroying roads and bridges, thus hindering the response;
- Local infrastructure may be unable to support CISAR responders (e.g., logistics, housing, food, etc.);
- Launch ramps may be unusable;
- Large areas of land covered in water during a flood can become uncharted waterways in which crews will be required to operate and could potentially conceal numerous hazards (e.g., cars, trees, signposts, etc.);
- Waterway aids to navigation may be moved off location or damaged, becoming useless or dangerous to CISAR responders and the boating public if the off-station condition is not recognized;
- Obstacles under water and large floating debris may damage boat propellers, jet drives, and hulls;
- Operating boundaries will need to be set or adjusted for increased and uncharted waterways after a flood to ensure full coverage;
- Boat crews should have extra fuel, knowledge of the nearest operating fueling station, or a plan for fuel delivery if local fueling locations are damaged or unusable; and
- Searching for survivors should be conducted as per Appendix B: Structural Marking Systems.

Because of these challenges, keeping a good lookout and monitoring boat speed will help keep crews safe and boats free from damage.

Boat Crews

Leadership and the need for decisive action are a necessity in the event of a CISAR response. Boat crews need clearly defined roles, responsibilities, and lines of authority.

Responders can be called on to conduct operations where immediate decisions will be required to save lives and accomplish the mission. Boat operators and boat crews need to be made aware of their scope of authority in order to effectively act with limited guidance from the IC. Enabling boat operators to act quickly and decisively will reduce the reliance on communications systems that may sometimes fail.

In all boat operations, the final decision authority for the safety of the mission rests with the boat's operator (Coxswain). If the Coxswain believes an evolution is unsafe or would cause undue harm to the crew, then they should have the authority to cease operations. Risk evaluation is a healthy and necessary part of every mission. If the risk outweighs the probable benefit, a mission should be reevaluated.

CISAR Boat Preparation

Situations cannot be predicted which is why training and maintenance are so vital to preparing for CISAR boat operations. Boat crews must train and remain ready to respond.

Likewise, the maintenance of resources is equally important. Daily boat checks and regularly scheduled maintenance must be performed to ensure boats are ready to respond in the event of a catastrophe.

Points to Consider in Flooding Scenarios

The following points are provided for consideration when using boats in CISAR flooding scenarios:

- Flat bottom jon boats may be more effective than Rigid Hull Inflatable Boats (RHIBs) or other types of inflatable boat due to chain link fences, barbed wire, and other debris that

Boat Crew Decontamination

In flooding scenarios, boat crews will inevitably get wet despite precautions. Decontamination of personnel and equipment is essential for the CISAR responder's health and safety. Showers, change of clothes/boots, bleach, sanitized wipes, laundry, etc., will be essential to ensure personnel and equipment are decontaminated at the end of each mission.

If boats are deployed via trailers from a base camp, CISAR responders should set up a decontamination area away from living quarters to ensure other responders are not contaminated.

(Note: Freshwater wash down may be limited due to contaminated local water.)

can cause damage to inflatable cells;

- Air boats can be effective in a flood scenario (headsets are required for maintaining communication), but use caution: air boats can spray toxic water into the air and be ingested by SAR responders and flood victims;
- Poles, oars, and paddles should be carried in all boats because motors and propellers take a beating on debris and unseen obstacles;
- Every boat should carry extra boat propellers (propellers can be damaged by debris);
- Personal Flotation Devices (PFDs) should be carried in every boat and worn by all rescue personnel and survivors (include extra large and small size PFDs);
- Consider carrying a lightweight ladder for extricating persons from roof tops, waders, chain saws, and dead man sticks to lift power lines;
- Every boat should be equipped with at least a first aid kit (a better equipped medical kit is preferred);
- Ideally, every boat crew should have an Emergency Medical Technician (EMT);
- In flooding scenarios, animals and insects may pose additional challenges to boat crews;
- Boats should be equipped with sturdy, water resistant radios or use radio bags to limit damage due to submersion;
- Boats should be equipped with lights and chemical sticks;
- Boat managers should implement routine boat reporting requirements to ensure boat crew safety while deployed;
- Responders should be current on all vaccines and if necessary, be provided broad-spectrum antibiotics to combat the effects of contaminated water;
- Boat crews should have a minimum of three days food and supplies (anticipate limited logistical support for the first 72 hours; and
- Logistical support (e.g., berthing, laundry, portable toilets, portable shower trailers, fuel trucks, communications equipment, etc.) must be implemented as soon as possible to ensure the long-term success of any CISAR operation.

Section 2-13: Conclusion of CISAR Operations

As per the NSP, CISAR operations shall normally continue until all reasonable hope of rescuing survivors has passed.

The SMC will recommend to the IC when to discontinue CISAR operations. This person should have the training and experience to make and defend this difficult decision, which should be objectively based on the facts of the operation. The IC will make the final decision.

If no SMC is assigned, the IC should normally make this decision.

Often, external pressure (i.e., political, families of unaccounted for victims, etc.) may insist that CISAR operations continue beyond the time when there is any reasonable hope of rescuing survivors.

Normally this can be minimized by keeping the public well-informed of the CISAR operation's progress and ensure those not directly involved understand the level of effort expended, and that the probability of success of further operations is negligible.

As per Table 2-12: Termination and Suspension Criterion for CISAR Operations, two terms are used to indicate the conclusion of CISAR operations:

Table 2-12: Termination and Suspension Criterion for CISAR Operations

Conclusion of CISAR Operations	
Termination All known person(s) are located and accounted for. No other CISAR issues arise. If person(s) remain missing at the conclusion of the CISAR effort, the CISAR operation should not be formally closed, but suspended.	Active Search Suspended (ACTSUS) Pending Further Developments When the CISAR operation cannot be terminated because person(s) remain missing and further search efforts appear futile, the CISAR operation may be suspended.

Termination

The decision as to whether to terminate CISAR operations should consider:

- The probability that survivors are still alive accounting for prevalent environmental factors since the incident;
- The cumulative probability that survivors would have been found; and
- The availability of CISAR responders to continue the search.

Suspension

In making the decision to suspend a CISAR operation:

- Care should be taken not to end the search prematurely; and
- The humanitarian significance of the effort must be considered, but also understanding there must be a limit to the time and effort that can be devoted to CISAR as dictated by the circumstances.

Prior to suspending CISAR operations, a thorough review should be made. The decision to suspend operations should be based on an evaluation of the probability that there were survivors from the initial incident, the probability of survival after the incident, the probability that any survivors were within the search area, and the effectiveness of the search effort. The reasons for suspending CISAR operations should be clearly recorded.

The review should also examine:

- Whether search decisions were based on proper assumptions and reasonable planning;
- Certainty of the location of victims and other factors used in determining the search area;
- Whether significant clues and leads should be re-evaluated;
- The search plan to ensure that:
 - All assigned areas were searched;
 - There was effective use of air, boat, and ground CISAR responders to provide the best probability that victims would be located; and
 - Compensation was made for search degradation caused by the environment, location (urban, rural, mountain, maritime, etc.) weather, mechanical, or other difficulties.
- The determination about the survivability of survivors, considering:
 - Time elapsed since the incident;
 - Environmental conditions; and
 - Age and physical condition of potential survivors.

The IC may continue CISAR operations beyond the time when normally be suspended due to humanitarian considerations, large number of people involved, or forecast of greatly improved search conditions. However, CISAR responders should not be risked when the potential for saving life is minimal, or when their use may preclude their availability for other critical missions.

Reopening Suspended CISAR Operations

If significant new information is obtained, reopening CISAR operations should be considered. Reopening without good reason may lead to unwarranted use and risk of injury to CISAR responders, possible inability to respond to other emergencies, and false hope among relatives.

Termination & Suspension of CISAR Operations

In CISAR operations, when all persons in need of rescue are accounted for and no other CISAR issues arise, then the CISAR operation can be **terminated**.

The IC, in consultation with the SMC and based on reliable information, should consider that a rescue operation has been successful or that the emergency no longer exists.

However, some CISAR operations may require extended searching. At some point, however, the IC, in consultation with the SMC, must make the difficult decision to **suspend** further CISAR operations pending the receipt of additional information.

If the IC, in consultation with the SMC, determines the following:

1. Having thoroughly evaluated the effectiveness of the CISAR operation and all available information concerning the CISAR effort; **and**
2. Having made the determination that further CISAR efforts would be ineffective and most likely not result in additional lives saved...

Then they may temporarily suspend CISAR operations pending further developments. Information subsequently received should be evaluated and CISAR operations resumed when justified.

When either a termination or suspension decision is made, the IC shall promptly inform Federal, State, Tribal, Territorial/Insular Area, and local CISAR responders, authorities, or services which have been activated or notified.

If there is any real possibility to save additional lives, CISAR efforts should be resumed.

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| Part 3 | Special Considerations

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Section 3-1: Risk Assessment

CISAR is inherently dangerous to both the survivor and the CISAR responder. The danger will most likely be greater in response to a catastrophic incident due to factors such as workload, environment, mission complexity, and inexperience. The CISAR environment and operational tempo make risk management even more critical for both operations management and force protection.

Risk assessment is a continuous process that should be conducted by the Risk Assessment/SAR Mission Coordinator (RAC/SMC) and each CISAR responder. When a mission situation changes, risk should be reevaluated with any associated mitigation options discussed. These periodic updates are necessary anytime there is a significant change to either the environment or the SAR mission.

Every CISAR responder should participate in the risk assessment process. Each person brings experiences to a risk assessment that others on the team may not have considered. This team approach to risk management also allows each member of a CISAR team to be made aware of the challenges and related risks of the mission.

The few moments CISAR responders take to assess the risks of a particular CISAR mission may be crucial in mitigating safety hazards.

Follow Agency Guidelines

CISAR responder risk assessments should be conducted in accordance with their respective agency procedures. Most agencies at all levels of government have methods for assessing risk.

Assessing Risk if No Guidelines Available

If an agency does not provide risk assessment models or guidelines, **do not skip thinking through and assessing risk!**

The following are some examples of the kinds of risk factors SAR operators should evaluate in thinking about CISAR operations. A numerical model for risk assessment can be used, assigning a value from 0 (lowest risk) to 10 (highest risk) for each factor, to get an idea of the CISAR operation's risk level.

Whatever approach is used to model risk, be sure to also add own factors that may be specific or unique to your agency's CISAR operations or the specific incident.

Areas of potential to risk consider include:

- **Supervision.** How much oversight is needed to supervise the SMC, CISAR responder team, or crew? The higher the risk, the more a supervisor needs to focus on observing and checking.
- **Planning/Preparedness.** How much information is available? How clear is the information? How much time is available to plan and execute the mission?
- **Crew Selection.** Consider the experience of the CISAR responders performing the mission. If individuals are replaced during the mission, assess their experience level, and ensure proper turnover.
- **Environment.** Factors that affect personnel, unit readiness, and resource performance. These factors may include time of day, visibility, ceiling level, proximity to other external and geographic hazards and barriers, and the amount of infrastructure damage.
- **Mission Complexity.** Consider both the time and resources required to conduct the mission. The longer the exposure to hazards for the CISAR responder and the person(s) in need of assistance, the greater the risks involved. What is the precision level needed to successfully complete the mission?

Figure 3-1: CISAR Mission Risk Analysis offers guidance on how to think through these and other factors; the issues that are involved; and how you might arrive at a conclusion over how much risk can be tolerated or managed in CISAR operations.

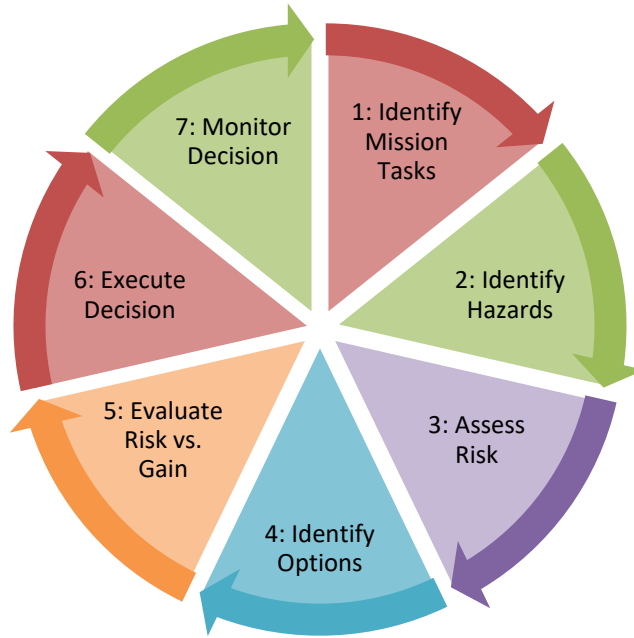


Figure 3-1: CISAR Mission Risk Analysis

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Section 3-2: Health and Safety

This section details several health and safety issues related to CISAR operations. CISAR responders should understand and plan for the various health and safety risks associated with a CISAR environment.

Through proper risk assessment and the use of an effective safety plan, personal injuries and health risks can be more effectively mitigated.

CISAR responders who become sick or injured during operations should immediately contact the IC to obtain medical assistance. Additional assistance can be received from ESF #8 (Public Health and Medical Services) personnel.

Injury and Illness Prevention

Potential injuries and illnesses outlined in this section and other potential hazards that a CISAR responder may encounter can be effectively mitigated by using appropriate personal protective equipment (PPE) for the hazard or environment encountered. The review of the Incident Safety Plan and ICS 215A Incident Action Plan Safety Analysis, which outlines potential hazards and associated mitigations, will assist the CISAR responders in determining what hazards will be faced. Basic PPE such as helmets, ear plugs/muffs, gloves, boots, safety glasses, flotation devices, and respiratory protection should be available and used by each CISAR responder.

Additional PPE may be required as dictated by the hazards that may be encountered in a particular CISAR environment.

Safety is paramount. Personal safety should always be the first concern; co-workers should be the second concern; and the survivor's safety third.

Decontamination processes and procedures should be considered for all CISAR responders and included in any safety and health plan.

Injuries and illnesses should be reported to your immediate supervisor, incident safety officer, or commander.

Health and Safety Issues in Flooded Areas

The danger of flood does not end when the water stops rising. CISAR responders must work together and look out for one another to ensure safety in flooded areas.

Floodwaters may contain fecal material from overflowing sewage systems, as well as

agricultural and industrial byproducts. There is always a risk of disease from eating or drinking anything contaminated with flood water.

Any open cuts, sores, or burns, no matter how minor, which can be exposed to contaminated flood water should be kept as clean as possible by washing with soap and clean water to control infection. If a wound develops redness, swelling, or drainage, seek immediate medical attention.

During CISAR operations, the risk of wounds may be increased. For this reason, CISAR responders should be sure they are up to date with tetanus vaccination, ideally before starting response operations. Being up to date for tetanus vaccine can greatly simplify the treatment for any wound that might occur.

Hepatitis A

Hepatitis is an inflammation of the liver. Toxins, certain drugs, some diseases, heavy alcohol use, bacterial, and viral infections can cause hepatitis.

Hepatitis A is a liver disease caused by the Hepatitis A virus (HAV). HAV infection produces a self-limited disease that does not result in chronic infection or chronic liver disease. The fecal-oral route primarily transmits HAV infection, by either person- to-person contact or through consumption of contaminated food or water.

Contaminated water in a flooded area may contain high amounts of raw sewage that has leached from septic systems and municipal wastewater treatment infrastructure.

The Hepatitis A vaccination is the most effective measure to prevent HAV infection. Good decontamination procedures, as well as washing the hands, body, and equipment after flood water exposure will assist in preventing a Hepatitis A virus infection.

Excessive Noise

In CISAR operations, excessive noise from equipment such as chain saws, backhoes, tractors, pavement breakers, blowers, and dryers may cause ringing in the ears and possible subsequent hearing damage.

Proper hearing protection should be worn when operating equipment that causes excessive noise.

Mosquito Repellants

Prevent mosquito bites by wearing long pants, socks, and long-sleeved shirts. Use of an insect repellants is highly recommended.

Regardless of what insect repellent used, if you start to get mosquito bites reapply the repellent according to the label instructions or if possible, remove yourself from the area with biting

insects.

The Environmental Protection Agency (EPA) recommends the following precautions when using insect repellents:

- Apply repellents only to exposed skin and/or clothing (as directed on the product label);
- Do not use repellents under clothing;
- Never use repellents over cuts, wounds, or irritated skin;
- Do not apply repellents to eyes or mouth and apply sparingly around ears;
- When using sprays, do not spray directly on the face, but spray on hands first and then apply to face;
- Do not allow children to handle the repellent, apply to your own hands first and then put on the child (You may not want to apply to children's hands);
- Use just enough repellent to cover exposed skin and/or clothing because heavy application and saturation are generally unnecessary for effectiveness (If biting insects do not respond to a thin film of repellent, apply more);
- After returning indoors, wash treated skin with soap and water or bathe, especially when repellents are used repeatedly in a day or on consecutive days;
- Wash treated clothing before wearing again (This precaution may vary with different repellents. Check the product label.); and
- If you get a rash or other bad reaction from an insect repellent, stop using the repellent, wash the repellent off with mild soap and water, and seek medical guidance (If you seek medical attention because of the repellent, take the repellent with you to show the doctor).

Hazardous Materials

Beware of hazardous materials. Wear protective clothing and gear when handling hazardous materials. Wash skin that may have come in contact with hazardous chemicals. Contact the IC about hazardous materials SAR operators may have encountered.

In flooded areas, be aware that the water may bury or move hazardous chemical containers of solvents or other industrial chemicals from their normal storage places.

If any compressed gas cylinders (e.g., 20-lb. tanks from a gas grill, or household propane tanks) are discovered, do not attempt to move them without assistance. Compressed gas cylinders represent a very real danger of fire or explosion.

Unstable Buildings and Structures

CISAR responders will be searching homes for persons in distress or have injuries. Be aware that buildings may be unstable. Leave immediately if there are shifting or unusual noises or visual signs that signal a potential structure collapse is imminent.

Wash Hands

Finding running water to hands may become difficult. However, keeping hands clean helps avoid getting sick. It is best to wash hands with soap and water for 20 seconds. However, when water is not available, use alcohol-based hand products made for washing hands (sanitizers).

Water Sanitation

In a CISAR environment, water may not be safe to drink, clean, or bathe in. During and after a disaster, water can become contaminated with bacteria, sewage, agricultural or industrial waste, chemicals, and other substances that can cause illness or death. The following information will help to ensure the water is safe to use:

- Use only bottled, boiled, or treated water for drinking, cooking, or preparing food, washing dishes, cleaning, brushing your teeth, washing your hands, making ice, and bathing until your water supply is tested and found safe;
- If your water supply is limited, use an alcohol-based hand sanitizer for hand washing;
- If you use bottled water, be sure it came from a safe source (if unsure whether the water came from a safe source, boil or treat the water before use);
- Boiling water is the preferred way to kill harmful bacteria and parasites:
 - Bringing water to a rolling boil for 1 minute will kill most organisms;
 - Boiling will not remove chemical contaminants; and
 - If water is contaminated with chemicals, seek another source of water, such as bottled water.
- If boiling water is not an option, treat water with chlorine tablets, iodine tablets, or unscented household chlorine bleach (5.25% sodium hypochlorite):
 - If chlorine or iodine tablets are used, follow the directions that come with the tablets;
 - If household chlorine bleach is used, add 1/8 teaspoon (~0.75 mL of bleach per gallon of water if the water is clear;
 - For cloudy water, add 1/4 teaspoon (~1.50 mL) of bleach per gallon;
 - Mix the solution thoroughly and let it stand for about 30 minutes before use; and
 - Treating water with chlorine tablets, iodine tablets, or liquid bleach will not kill many parasitic organisms; boiling is the best way to kill these organisms.
- Use water storage tanks and other types of containers with caution (fire truck storage

tanks and previously used cans or bottles may be contaminated with microbes or chemicals);

- Water containers should be thoroughly cleaned, then rinsed with a bleach solution before use as per the following:
 - Mix soap and clean water in the container; shake or stir to clean inside of container, then rinse;
 - For gallon- or liter-sized containers, add approximately 1 teaspoon (4.9 mL) household bleach (5.25%) with 1 cup (240 mL) water to make a bleach solution;
 - Cover the container and shake the bleach solution thoroughly, allowing it to contact all inside surfaces; and
 - Cover and let stand for 30 minutes, then rinse with clean water.
- Practice basic hygiene:
 - Wash hands with soap and bottled water or warm water that has been boiled or disinfected;
 - Wash hands before preparing food or eating, after toilet use, after participating in clean-up activities, and after handling articles contaminated with floodwater or sewage; and
 - Use an alcohol-based hand sanitizer to wash hands if there is a limited supply of clean water.

Rubble and Debris

Whether natural or manmade, CISAR responders will encounter significant rubble and debris that may require digging through while looking for survivors.

Caution must be considered in shifting, unstable, or overhead rubble which can cause strains, sprains, or other injuries.

Rubble piles are particularly hazardous because there are no tie-off points to secure safety ropes and harnesses. This becomes problematic when looking for survivors amid rubble and debris.

CISAR responders normally have limited heavy construction equipment for rubble and debris removal. This type of equipment can present hazards to personnel, as well as to the equipment operators who may have to work in very tight quarters, uneven spaces, and poor visibility.

Use teams of two or more people to move bulky objects. One person should avoid lifting any material that weighs more than 50 pounds.

Hypothermia

When exposed to cold temperatures, the body begins to lose heat faster than can be produced.

The result is hypothermia, or abnormally low body temperature. Body temperature that is too low affects the brain, making the victim unable to think clearly or move well. Hypothermia is particularly dangerous because a person may not know when it occurs.

Hypothermia occurs most commonly at very cold environmental temperatures but can occur even at cool temperatures (above 40°F) if a person becomes chilled from rain, sweat, or submersion in cold water. Hypothermia warning signs include the following:

Adults:

- Shivering/exhaustion;
- Confusion/fumbling hands;
- Memory loss/slurred speech; and
- Drowsiness.

Infants:

- Bright red, cold skin; and
- Very low energy.

Hypothermia — What To Do

If signs of hypothermia are noticed, take the person's temperature. If below 95°, the situation is considered a medical emergency. If medical care is not available, begin warming the person, as follows:

- Place the victim in a warm room or shelter;
- Remove wet clothing;
- Warm the center of the body first - chest, neck, head, and groin (If necessary, use skin-to-skin contact under loose, dry layers of blankets, clothing, towels, or sheets);
- Warm beverages can help increase the body temperature (Do not give alcoholic beverages and do not try to give beverages to an unconscious person);
- After the victim's body temperature has increased, keep the person dry and wrapped in a warm blanket, including the head and neck; and
- Get medical attention as soon as possible.

A person with severe hypothermia may be unconscious, may not seem to have a pulse, or to be breathing. In this case, handle the victim gently, and get emergency assistance immediately. Even if the victim appears dead, CPR should be provided. CPR should continue while the victim is being warmed, until the victim responds, or medical aid becomes available. Hypothermia victims who appear to be dead could possibly be resuscitated successfully.

Frostbite

Frostbite is an injury to the body caused by freezing and leads to a loss of feeling and color in affected areas. Frostbite most often affects the nose, ears, cheeks, chin, fingers, or toes. Frostbite can permanently damage the body; severe cases can lead to amputation.

At the first signs of redness or pain in any skin area, protect exposed skin and if possible, get out of the cold. Any of the following signs may indicate frostbite:

- White or grayish-yellow skin area;
- Skin that feels unusually firm or waxy; and
- Numbness.

The signs of frostbite are often not recognized by the individual. If symptoms are detected, seek medical care.

Because frostbite and hypothermia both result from exposure, first determine whether the victim also shows signs of hypothermia. Hypothermia is a more serious medical condition and requires emergency medical assistance.

Frostbite — What To Do

If there is frostbite but no sign of hypothermia and immediate medical care is not available, proceed as follows:

- Place victim in a warm area as soon as possible;
- Unless necessary, do not walk on frostbitten feet or toes (This may increase frostbite damage);
- Immerse the affected area in warm (not hot) water (the temperature should be comfortable to the touch for unaffected parts of the body), or warm the affected area using body heat (e.g., the heat of an armpit can be used to warm frostbitten fingers);
- Do not rub with snow or massage the frostbitten area (This can cause more damage); and
- Do not use a heating pad, heat lamp, or the heat of a stove, fireplace, or radiator for warming (Affected areas are numb and can be easily burned).

Heat

CISAR responders must be aware of the potential for heat problems. Even short periods of high temperatures can cause serious health problems. Depending on the type of incident, a high-heat environment can tax the stamina of CISAR responders, who may be suited up in heavy protective garments and may work for long periods without breaks or equipment changes.

Heat Stroke

Heat stroke occurs when the body is unable to regulate its temperature. The body's temperature rises rapidly, the sweating mechanism fails, and the body is unable to cool down. Body temperature may rise to 106°F or higher within 10 to 15 minutes.

Heat stroke can cause death or permanent disability if emergency treatment is not provided. Heat stroke becomes even more of a problem when medical facilities are not readily available during CISAR operations.

Recognizing Heat Stroke

Warning signs of heat stroke vary, but may include the following:

- An extremely high body temperature (above 103°F, orally);
- Red, hot, and dry skin (no sweating);
- Rapid, strong pulse;
- Throbbing headache;
- Dizziness;
- Nausea;
- Confusion; and
- Unconsciousness.

Heat Stroke — What To Do

If the signs of heat stroke are observed, a life-threatening emergency may be occurring. Have someone call for immediate medical assistance, begin cooling the victim, and do the following:

- Get victim to a shady area;
- Cool the victim using whatever methods you can;
- Monitor body temperature, and continue cooling efforts until the body temperature drops to 101-102°F;
- If emergency medical personnel or a medical evacuation is delayed, call the IC for further instructions;
- Do not give the victim fluids to drink; and
- Get medical assistance as soon as possible.

Sometimes a victim's muscles may begin to twitch uncontrollably because of heat stroke. If this happens, keep the victim from injuring himself, but do not place any object in the mouth and do not give fluids. If there is vomiting, make sure the airway remains open by turning the victim on his or her side.

Heat Exhaustion

Heat exhaustion is a milder form of heat-related illness that can develop after several days of exposure to high temperatures and inadequate or unbalanced replacement of fluids. It is the body's response to an excessive loss of water and salt contained in sweat.

Recognizing Heat Exhaustion

Warning signs of heat exhaustion include the following:

- Heavy sweating;
- Paleness;
- Muscle cramps;
- Tiredness;
- Weakness;
- Dizziness;
- Headache;
- Nausea or vomiting; and
- Fainting.

The skin may be cool and moist. The victim's pulse rate will be fast and weak, and breathing will be fast and shallow. If heat exhaustion is untreated, it may progress to heat stroke. Seek medical attention immediately if any of the following occurs:

- Symptoms are severe; and
- The victim has heart problems or high blood pressure.

Heat Exhaustion — What To Do

Cooling measures that may be effective include the following:

- Provide cool, nonalcoholic beverages;
- Rest;

- Cool shower, bath, or sponge bath;
- An air-conditioned environment; and
- Lightweight clothing.

Heat Cramps

Heat cramps usually affect people who sweat a lot during strenuous activity. This sweating depletes the body's salt and moisture. The low salt level in the muscles may be the cause of heat cramps. Heat cramps may also be a symptom of heat exhaustion.

Recognizing Heat Cramps

Heat cramps are muscle pains or spasms – usually in the abdomen, arms, or legs – that may occur in association with heavy activity. If you have heart problems or are on a low-sodium diet, get medical attention for heat cramps.

Heat Cramps — What to Do

If medical attention is not necessary, take these steps:

- Stop all activity, and sit quietly in a cool place;
- Drink clear juice or sports beverage;
- Do not return to strenuous activity for a few hours after the cramps subside, because further exertion may lead to heat exhaustion or heat stroke; and
- Seek medical attention for heat cramps if they do not subside in one hour.

Hydration

CISAR responders must ensure they receive plenty of fluids during rescue operations. Generally, personnel recover more quickly by carefully choosing fluids and liquids after exertion to replace fluids and replenish glycogen.

(Note: Personnel should avoid alcoholic beverages prior to intense activity and appropriate amount of rest/sleep should be obtained.)

Recovery Fluids

- Hydration is optimized by drinking to quench thirst and then drinking additional fluids (as a guide, personnel should consume 150% of ounces of weight/fluid lost during activity);

- Sports drinks and carbohydrate-containing beverages replenish glycogen in the muscles and improve rate of absorption of water and sodium;
- Full fluid replacement may take as long as 24 to 48 hours following strenuous activity;
- Cool water is quickly absorbed and an excellent choice for fluid replacement;
- All participants should consume a minimum of 0.5 liters of water per hour of activity (water with sports drink additive should be rotated every other bottle);
- Careful attention should be made to avoid over hydration (Decrease consumption when activity decreases); and
- Solid foods containing carbohydrates should be consumed at least one hour before activity (allows time for absorption and prevents nausea).

Additional guidelines and health and safety information can be found within:

- Centers for Disease Control and Prevention
 - [*Response Worker Health and Safety*](#);
 - [*Hygiene in Emergency Settings*](#);
 - [*Mosquitoes, Hurricanes, and Flooding*](#);
 - [*Stay Safe After a Hurricane or Other Tropical Storm*](#);
 - [*Clean Hands Save Lives: Emergency Situations*](#);
 - [*Floodwater After a Disaster or Emergency*](#);
 - [*Keep Food Safe after a Disaster or Emergency*](#); and
 - [*Extreme Heat: A Prevention Guide to Promote Your Personal Health and Safety*](#).

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Section 3-3: Traumatic Stress Reactions

CISAR operations can be challenging, interesting, rewarding, and a source of personal and professional growth. There may be a dark side, however, if the stress associated with a CISAR operation is prolonged, extreme, or not resolved within a reasonable amount of time (usually about three to four weeks) after the operation.

Stress is a normal and natural state of elevated arousal in response to a stimulus. The greater the stimulus, the stronger will be the response. A heightened level of arousal alters the way we think or feel, and it can have significant effects on our bodies and behaviors. At low to moderate levels of arousal, stress reactions are not harmful and can help us function safely and effectively. In extreme stress, deterioration in performance and physical and mental health is often the result.

Catastrophic incidents exert extraordinary demands on emergency response personnel. CISAR responders may be exposed to traumatic operations that can involve the treatment of severely injured children or adults, gory sights and disturbing sounds, the handling of dead bodies or body parts, or even the injury or death of colleagues. The long hours, intensity of operational demands, ambiguous roles, and exposure to human suffering can adversely affect even the most experienced professionals.

CISAR responders and managers identifying or experiencing symptoms associated with stress should consult Agency specific guidance. In addition, the IC should be contacted to ensure ESF #8 (Public Health and Medical Services) personnel are notified, and the information contained in this Section is reviewed.

Normal Reactions to Disasters

Traumatic stress reactions to disaster begin as normal responses. Operations personnel often feel sadness, anger, and grief. Often, the need for rest is denied and they resist leaving the scene. Unresolved stress reactions are the source of future problems.

Too often, the stress experienced by CISAR responders is addressed as an afterthought. This approach is a formula for failure of supervisors and personnel to adequately manage traumatic stress. It virtually guarantees unnecessary stress-related suffering. It threatens unit cohesion and performance among emergency services personnel.

Stress Management Program Common Characteristics

The evidence thus far indicates that the very best stress management programs have the following characteristics:

- Comprehensive;
- Integrative;
- Systematic; and
- Multi-component.

A **comprehensive program** has elements in place before a traumatic event occurs, provides support during an incident, and offers a variety of services after the situation over.

An **integrative program** has elements that are strategically blended and interrelated. This approach assures that the right support services are in place for the right target populations, at the best possible times, and that the people most likely to be successful in assisting emergency personnel provide these services.

A **systematic program** provides support services in a logical, sequential order. Simple, easy to apply services, such as, resting and feeding personnel, are usually quite effective in the early stages of a crisis. More complex interventions may be necessary if the traumatic stress reaction does not resolve in a reasonable time.

A **multi-component program** is one that has many interventions or “tools” available to trained crisis intervention personnel to support people engaged in emergency operations.

Fortunately, steps can be taken to minimize the effects of traumatic stress before and after it occurs. Stress prevention and management comprises two critical elements: 1) organization and 2) individual. Adopting a preventive perspective allows both workers and organizations to anticipate stressors and shape responses, rather than simply reacting to a crisis when it occurs.

Organizational Approaches for Stress Prevention and Management

What follows are several practical steps that can be taken organizationally to minimize the effects of traumatic stress:

- Provide effective stress management structure and leadership. Elements include:
 - Policies and procedures to provide staff support services for the organization’s personnel before, during, and after traumatic events;
 - Clear chain of command and reporting relationships;
 - Available and accessible supervisors;
 - Disaster training for all responders;
 - Access to a specially trained staff support team, including peer support personnel, during operations;
 - Incorporate a staff support team into the incident command structure; and
 - Place a staff support officer within the command post to coordinate psychological

support functions.

- Shifts should be no longer than 12 hours, followed by 12 hours off. Typically, a two-hour work period is followed by a half hour down time. Intense cold or heat or the intensity of the scene itself may cause alterations in the deployment cycles;
 - Periodically orient work crews to time;
 - Briefings at the beginning of shifts as CISAR responders enter the operation;
 - Disengage unnecessary personnel;
 - Provide logistical support; and
 - Communication tools (e.g., cell phones, radios, etc.).
- Provide education and information on critical incidents, critical incident stress and the traumatic stress response. People who are informed become more stress resistant and are better able to manage critical incident stress when it strikes;
- Establish a well-trained staff support team and make sure it is trained to provide a variety of services to individuals and groups under different circumstances;
- Mobilize staff support services early in an operation;
- Define clear operational purpose and goals for each unit;
- Define clear strategies and tactics appropriate to assignment setting;
- Define operational roles by function;
- Nurture team support of one another;
- Create a buddy system to support and monitor stress reactions. Promote a positive atmosphere of support and tolerance with frequent praise; and
- Develop a plan for stress management:
 - Assess CISAR responders' functioning regularly;
 - Rotate workers between low-, mid-, and high-stress tasks;
 - Encourage breaks and time away from assignment;
 - Educate personnel about signs and symptoms of worker stress and coping strategies;
 - Provide individual support;
 - Provide immediate small group support (defusing) as required;
 - Provide Critical Incident Stress Debriefing at appropriate times after the incident; and
 - Develop an exit plan for CISAR responders leaving the operation, including an operations debriefing, stress support, re-entry information, opportunity to critique, and formal recognition for service.

Criteria for Disaster Crisis Teams

Support teams deployed to assist in a disaster should fulfill at least the following minimum criteria:

- Between 40 and 70 hours (minimum) training in crisis intervention for individuals and groups;
- A mental health professional as the team's clinical director;
- Trained peer support personnel;
- Assessment skills;
- Strategic planning skills;
- Staff support skills for individuals;
- Staff support skills for large groups;
- Staff support skills for small groups;
- Capacity to support emergency services significant others; and
- Follow-up and referral skills.

Services Offered by Staff Support Teams

Staff support teams offer a wide range of services to emergency personnel. They help to build stress resistance ("stress immunization") and enhance resiliency ("bounce back" capacity) by means of pre-incident education and stress management preparation.

Staff support teams assess both the severity of the incident and the intensity of the traumatic stress reactions in the personnel. They then develop an appropriate strategy to provide the best support services. A strategic approach to traumatic stress management should include the five 'Ts':

- Target:* Who requires support?
Type: What types of interventions?
Timing: When is the best time to provide assistance?
Theme: What key issues, concerns or circumstances need to be considered before a stress team takes action?
Team: Who would be the best people to provide the support services?

During a CISAR operation, the staff support team provides:

- Consultations to command personnel;
- Information updates;

- Individual crisis intervention; and
- Rest, Information, and Transition Sessions (RITS).

International Critical Incident Stress Foundation (ICISF)

The ICISF, a non-profit organization, coordinates a network of over 1,000 specially trained teams to provide support to emergency personnel. Each team has several mental health professionals who are familiar with the psychological needs of emergency personnel. The most important element of the team is the use of peer support personnel who connect most with the operations personnel. Teams function in partnership with mental health professionals, firefighters, police officers, emergency medical, and SAR peers. ICISF operates a 24-hour emergency hotline that can be a good source of emergency consultations and the deployment of crisis support teams to a traumatic event. Service fees are not charged to emergency services organizations, although assistance with expenses is usually expected. Free resources are also available on the ICISF website.

24-Hour Emergency Hotline: (410) 313-2473
www.icisf.org

Individual support continues after a situation ends. Group support sessions such as, Critical Incident Stress Debriefings (CISD), may be held according to the needs of the various groups who worked the disaster. The primary aim of group sessions is to restore *group cohesion* and *unit performance*.

Significant other support and a variety of follow-up contacts are essential services offered by staff support teams. Phone calls, visits, and home contacts are some of the ways staff support teams provide follow-up. Occasionally, someone is seriously impacted by a traumatic experience and a referral to a mental health professional is required to assist in the recovery process.

Table 3-1: Summary of Commonly Used Crisis Intervention Tactics provides additional information on commonly used crisis intervention tactics.

Table 3-1: Summary of Commonly Used Crisis Intervention Tactics

Summary of Commonly Used Crisis Intervention Tactics			
Intervention	Timing	Target Group	Potential Goals
Pre-Event Planning/Preparation	Pre-event	Anticipated target/victim population	Anticipatory guidance, foster resistance, resilience
Surveillance and Assessment	Pre-intervention	Those directly and indirectly affected	Determine need for intervention(s)
Strategic Planning	Both pre-event and during-event; Also, some after-event	Anticipated exposed and victim populations	Improve overall crisis response
Individual Crisis Intervention (including “psychological first aid”) and SAFER-R	As needed	Individuals as needed	Assessment, screening, education normalization, reduction of acute distress, triage, and facilitation of continued support
Large Group Crisis Intervention			
Rest, information, and sessions (RITS, formerly known as “demobilization”)	Shift disengagement, end of deployment	Emergency personnel; large groups	Decompression; ease transition from intense to less intense work; screening, triage, education, and meet basic needs.
* Respite Center	On-going, large-scale events as needed	Usually, Emergency Personnel	Respite, refreshment, screening, triage, and support
* Crisis Management Briefing (CMB); provide large group “psychological first aid”	On-going and post-event; may be repeated as needed	Heterogeneous large groups	Inform, control rumors, increase cohesion
Small Group crisis Intervention			
*Small Group Crisis Management Briefing (sCMB)	On-going events and post-events	Small groups seeking information and resources	Information, control rumors, reduce acute distress, increase cohesion, facilitate resilience, screening, and triage.

* Immediate Small Group Support (ISGS, also known as defusing) and a form of small group “psychological first aid”	(12 hours or less) Post-event	Small homogenous groups	Stabilization, ventilation, reduce acute distress, screening, information.
* Group debriefing (Powerful Event Group Support (PEGS, also known as Critical Incident Stress Debriefing, or CISD)	* 1-10 days for acute incidents; may be 3-4 weeks or even longer if group is in post-disaster recovery phases	Small homogeneous groups with equal trauma exposure (e.g., workgroups, emergency service, and military)	Increase cohesion and facilitate resilience. Increase ventilation, information, normalization. Reduce acute distress. Screening and triage. Follow-up is essential
Family Crisis Intervention	Pre-event, as needed	Families	Wide range of interventions; e.g., pre-event preparation, individual crisis intervention, CMB, PEGS (CISD), or other group process
Organization/Community Intervention Consultation	Pre-event, as needed	Organizations affected by trauma or disaster	Improve organizational preparedness and response; leadership consultation
Pastoral Crisis Intervention	As needed	Individuals, small groups, large groups, congregations, and communities who desire faith-based presence/crisis intervention	Faith-based support
Follow-up and/or Referral; Facilitate Access to Continued Care	As needed	Intervention recipients and exposed individuals	Assure continuity of care

G.S. Everly Jr. and J.T. Mitchell, *Integrative Crisis Intervention* (Ellicott City: Chevron Publishing Corporation, 2008). Adapted with permission.

Individual Approaches for Stress Prevention and Management

Managing personal stress will help each CISAR responder stay focused on hazards at the site and to maintain the constant vigilance required for personal safety. Often CISAR responders do not recognize the need to take time for themselves and to monitor their own emotional and physical health – especially when recovery efforts stretch into several weeks. The following simple guidelines are provided to support CISAR responders:

- Be calm and pace yourself. Think before reacting. Rescue and recovery efforts at the site may continue for days or weeks;
- Make work rotations from high stress to lower stress functions;
- Limit exposure to gory sights and sounds. Handling human remains is highly stressful for most people;
- Take frequent rest breaks. Rescue and recovery operations take place in extremely dangerous work environments. Mental fatigue over long shifts can place CISAR responders at greatly increased risk for injury. Breaks help to keep you alert;
- Four hours sleep in a 24-hour period is a minimum for health;
- Maintain a positive mental attitude;
- Maintain a positive sense of humor;
- Do not over control your emotions;
- Watch out for each other. Co-workers may be intently focused on a particular task and may not notice a hazard nearby or behind;
- Be aware of those around you. CISAR responders who are exhausted, feeling stressed or even temporarily distracted may place themselves and others at risk;
- Maintain as normal a schedule as possible. Regular eating and sleeping are crucial. Adhere to the team schedule and rotation;
- Eat nutritious foods. Avoid too much sugar, foods high in fat content, processed foods, and white bread;
- Try to eat a variety of foods and increase your intake of complex carbohydrates (e.g., breads and muffins made with whole grain, granola bars);
- Make sure plenty of fluids such as water and juices are consumed. Limit caffeine intake. Avoid alcohol use for several days after disaster work. It reduces rapid eye movement sleep patterns, which is not healthy;
- Whenever possible, take breaks away from the work area. Eat and drink in the cleanest area available;
- Recognize and accept what you cannot change (e.g., chain of command, organizational structure, waiting, equipment failures, etc.);
- Talk to people when you feel like it. You decide when you want to discuss your

experience. Talking about an event may be uncomfortable. Choose your own comfort level. Listen to your colleagues;

- Use counseling assistance programs available through your agency;
- Recurring thoughts, dreams, or vivid, disturbing memories are normal. They will generally decrease over time. Get help if they become extreme, repetitive, or do not decrease over a month's time.
- Communicate with your loved ones at home as frequently as possible. Express your feelings to people you trust;
- If you are fit, physical exercise helps to reduce the chemicals of distress in a person's body. Even walking helps;
- Attend group support services when offered by a trained support team. They can "take the edge off" of a bad incident;
- Be careful with jokes about the incident. Others may be sensitive;
- Do not engage in unproductive criticism of others. Operational mistakes can be corrected later;
- Anger is a frequent emotion after disaster work. Do not take it personally. Anger should subside in a reasonable amount of time;
- Focus on the here and now. Telling old war stories of events that were worse than the current event is not always helpful;
- Listen to those who want to talk about their experience;
- Shedding tears after a painful event is perfectly normal. But frequent uncontrolled crying spells accompanied by sleep disturbance and an inability to return to normal duties is an indication that a person needs additional assistance; and
- Extreme or prolonged (beyond a month) stress reactions may need professional assistance to reduce their impact. The good news is that several psychological therapies have a proven track record in facilitating the recovery of traumatized people. The earlier the therapy is begun, the better the results.

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Section 3-4: Persons with Special Needs

Vulnerability and Risks

Survivors sometimes have special needs or pose special risks.

A person at home alone is often a potential "victim of circumstance," especially if they are elderly or disabled. Distress situations can be worsened by an injurious fall, heart attack, withdrawal symptoms, robbery or bodily attack, or fear of death. Such people may be in a serious predicament and may be forced to just "lay there" until someone happens to show-up to check on or discover them. Health problems can be aggravated by stress or environmental conditions. An injured person who is alone may not be able to call for help and therefore may be among the last persons found during search operations.

Other special needs persons may need to be rescued from facilities such as hospitals, nursing homes or schools.

Prisoners may pose special risks and require continuity of custody.

Assistance

CISAR responders should be diligent to look for persons who may be unable to help themselves or even to call for help. When people with special needs are located, they should be carefully assessed to ensure their situation is not worsened.

CISAR responders should:

- Be sensitive and reassuring;
- Handle person(s) with special needs with extra care;
- Be alert to taking important medicines or service animals (see Section 3-6: Animals);
- Alert SCP or place-of-safety personnel of special medical or other immediate needs of the person(s) rescued; and
- Help the person contact a loved one or care provider who may be able to provide appropriate supplemental information or assistance if necessary.

Special skills or equipment may be needed to assist some special needs persons, and large numbers of occupants of institutions such as hospitals or nursing homes may require special mass rescue assistance.

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Section 3-5: CISAR and Children

Multiple issues affecting children emerge during a disaster, including needs for evacuation and shelter, pediatric medical treatment, mental health services, family and caregiver reunification, emergency child care, legal services, restoration of child care, school, and recreational services/infrastructures.

During Hurricane Katrina, the nation witnessed how little attention our disaster response infrastructure had paid to understanding the needs of children, much less to developing resources and capabilities to meet those needs.

Among the most critical problems arising in the immediate aftermath of Hurricane Katrina was the separation of over 5,000 children from their parents or guardians in the chaos of the evacuations and rescue procedures. For both legal and humanitarian reasons, these unaccompanied minors posed a special problem for local, State, and Federal Governments and response agencies. It took six months to reunite all the children with their families.

To promote positive outcomes, a CISAR response should include attention to three fundamental obligations concerning children (Table 3-2: Children in a Catastrophic Incident):

Table 3-2: Children in a Catastrophic Incident

Children in a Catastrophic Incident¹¹	
Recognize and Plan for Children’s Distinct Needs	Children have unique medical, psychosocial, physical, and judicial needs in disaster situations, many of which differ from the needs of adults and require special protocols, procedures, and tools.
Foster Resiliency	Emergency rescue and disaster relief responders should intentionally develop resources and response capabilities based on current understandings of how to foster resiliency under various crisis conditions encountered in disasters.
Provide a Continuum of Care	The ultimate goal of disaster relief agencies, whether private or governmental, should be to “hold safe” the children in their care until families, community agencies, child care centers, schools, places of worship, and other local primary caregivers for children can resume their responsibilities of care after a disaster. The “continuum of care” reflects the distinct needs of children from the immediate first-response relief through the rebuilding of normal lives and living conditions.

¹¹ Lenore T. Ealy and Page T. Ellison-Smith, “To Hold Safe: Framing a New Era of Disaster Child Care”, Project K.I.D. White Paper (Carmel, IN: Project K.I.D., 2007). Available online at www.project-kid.org.

Initiate a Continuum of Care

CISAR responders are the first link in the “Continuum of Care” for children who are victims of disasters.

CISAR typically takes place in the immediate hours and days after a disaster and requires attention to provision of Emergency Child Care.

CISAR responders should be trained in the essentials of addressing child trauma, and emergency medical response should have access to pediatric personnel, dosages, and equipment.

Of particular concern at this stage are procedures for preventing family separation and for addressing the needs of unaccompanied minors. These procedures are important during all SAR activities but can be particularly important during a catastrophic incident when many children are affected.

Table 3-3: Disaster Child Care Continuum explains the Continuum of Care that could be implemented during a catastrophic incident.

Table 3-3: Disaster Child Care Continuum

Disaster Child Care Continuum¹²			
Phase I “Emergency Care”	Phase II “Respite Care”	Phase III “Temporary Care”	Phase IV “Long-Term Recovery”
		Infrastructure Recovery	
Emergency/first response. Immediately post-disaster until situation stabilizes	As situation stabilizes until need no longer exists	Temporary care begins as families stabilize and return to work routines and continues until full recovery is complete Damage surveys and rebuilding begin.	Ongoing infrastructure recovery will also attend to supporting ongoing medical, mental health and psychosocial needs of children as they return to school and childcare environments.

¹² Table contents reproduced with permission from and is copyrighted 2005 by Project K.I.D., Inc.

Key Need: Engagement with calm, competent adults, and support of protective factors.	Key Need: Normalization through engaging activities and support for children’s primary caregivers.	Key Need: Restoration of normal interpersonal bonds and routines in both family and community.	Key Need: Reframing of traumatic experience and subsequent events and construction of new reality.
Key Goal: Address the emergency medical, evacuation, and legal protection needs of children. May include sheltering unaccompanied minors.	Key Goal: Provide a short respite from childcare for parents and child-centered stress relief for children.	Key Goal: Normalize and restore children to stable childcare environments as quickly as possible, enabling parents to return to work and focus on restoring normalcy to family and home.	Key Goal: Restore full permanent childcare and schooling capacity and support ongoing psychosocial and mental health recovery.
Key Actions: Disaster child care can support first responders, local law enforcement, and families by providing emergency “safe havens” where children may be kept safe and cared for until they can be returned to parents or provided other custodial care. Medical care, adjudication issues, and respite activities can be provided.	Key Actions: May include activating childcare services for first responders, as well as establishing drop-in play areas in critical areas to help children address emerging psychosocial, nutritional, and possible medical and legal needs. May include ongoing shelter of unaccompanied minors.	Key Actions: Disaster childcare can support local churches, schools, shelters, businesses, and other sites that might provide space for temporary childcare and educational facilities (mobile or modular units may be required). Help pre-existing providers with minimal damage return to business. Opportunities for programmed psychosocial interventions may emerge at this point.	Key Actions: Support local community in working toward full facility, personnel, and service recovery of Head Start facilities, childcare facilities, schools and other child/youth-oriented organizations and facilities.

General Guidance

The following general guidance is provided for CISAR responders concerning children in catastrophic incidents.

- If possible, keep children with parents/guardians. CISAR responders should make every effort to keep children with parents/guardians during extraction/rescue;
- If it becomes necessary to separate children from their parents/guardians, record the parent and child's personal information and make every effort to ensure the primary caregiver is delivered to the same location as the child;
- If safety necessitates removal of the children from parents/guardians, rescuers should ensure that parent's information is collected and that children are immediately tagged and tracked with an appropriate system.

Child Tracking

Low-tech child tracking solutions may include two-piece Tyvek wristbands, used to attach parent's information to the child and vice-versa.

High-tech systems could include a Radio Frequency Identification Device (RFID) or barcoded wristbands linked to tracking software. Parents can also be provided a card with information on the National Emergency Child Locator Center (NECLC), which may be activated in a catastrophic incident. CISAR responders should share information on children rescued separately from parents/caregivers to ensure that parents can be delivered to the same location as their child.

Even if the NECLC is not activated, the National Center for Missing & Exploited Children (1-800-THE-LOST) may be contacted to assist in any missing child case.

Considerations for Unaccompanied Minors

Provision for evacuation and mass care still largely assumes that children will be in the company of responsible guardians during an emergency. While this is true for most children, many will be dislocated from families/caregivers both by circumstances of the disaster (on school/work days most children will need to be reunited with their families) or by chaos and/or inadequate controls at schools, child care facilities, shelters and evacuation points.

Further challenges to the safety of children in emergencies arise from the ill intentions of people who take advantage of the chaos. For example, during the Hurricane Katrina response, there were many credible reports of predatory behavior toward children, whether by relatives or strangers. This reality persists in post-Katrina disasters.

Local, State, Tribal, and Territorial/Insular Area, and CISAR plans should provide for the security, care, and initial casework for rescued children, especially those who have been separated from their families.

During the first 72 hours of a catastrophic incident, CISAR responders must create "safe havens" for children where they will be cared for by personnel familiar with the potential medical,

emotional, and security needs of children. IC staff should include a “go-to” person to coordinate appropriate resources for children. Disaster childcare responders should be available to receive children from emergency personnel and to begin addressing their needs for medical care, food, shelter, and reunion with families.

Keeping children safe in disasters requires establishing identification and tracking policies and systems for children, especially those in mass care environments as well as those who have been or will be separated from their parents/guardians even for a short time during disasters.

The following considerations are provided for CISAR responders when rescuing unaccompanied children:

- Ensure unaccompanied minors are near personnel who will keep them safe and initiate necessary recovery procedures;
- If child is rescued unaccompanied, observe, and collect the child’s personal information. Ensure the child’s information is provided to the next caregiver who receives the child. Such data may include:
 - Child’s name;
 - Brief description of the child (age, race, sex, clothing, etc.);
 - Rescue date;
 - Rescue time;
 - Rescue location, including geo-positioning data if available;
 - Brief description of circumstances in which the child was found (e.g., description of building, other people present, mode of rescue, medical condition, emotional state, etc.); and
 - Names and contact information for rescuing unit and rescue personnel.
- Deliver children to place of safety and ensure personal handoff to another responsible adult. Effort should be made to deliver children to the most secure sites possible, with recognition that conditions at temporary survivor drop-off locations (“Survivor Control Points”, or SCPs) are generally very bad for children. CISAR responders should seek clear guidance on designated places of safety for rescued children.

An *Unaccompanied Minor Intake Questionnaire* is provided at the end of this section to assist CISAR responders when locating unaccompanied minors.

(Note: Organizations that provide services to children during disasters should have adequate child protection policies as well as child identification and tracking procedures in place and should train for emergency situations. Child protection guidelines should include protocols for volunteer access to and interaction with children. In most cases, provision should be made requiring appropriate credentialing for childcare volunteers that includes a criminal background check. In addition, legally defensible protocols should be established for validating custodial rights and the identity of parents and guardians.)

Promoting Resilience

When children are exposed to traumatic experiences such as the devastation following a natural disaster or similar disruption to their environment, they are often immersed in situations marked by physical destruction and emotional fear. Even when children are not separated from their parents, their caregivers are often themselves in panic, strained by the immediate need to ensure survival and protection for their family members and overwhelmed in facing the challenge of rebuilding their lives.

Even though CISAR responders may not spend much time with the displaced individuals, their interactions can greatly benefit children and their parents by helping lay the foundation for resilience.

Consider the following:

(Note: The following guidelines (Table 3-4: Guidelines for Helping Children Cope with a Disaster) was adapted from New York University Child Study Center, “Caring for Kids After Trauma, Disaster,” and, “Death: A Guide for Parents and Professionals,” Second Edition (NYU, 2006), from Project K.I.D.’s PlayCare Training materials, and with input from child resilience expert Heather Wood Ion. FEMA and the American Red Cross have compiled additional information on traumatic stress responses in children. Their document, Helping Children Cope With Disaster, may be accessed online at <https://www.fema.gov/pdf/library/children.pdf>.)

Table 3-4: Guidelines for Helping Children Cope with a Disaster

Guidelines for Helping Children Cope with a Disaster	
Try to make a personal connection	Introduce yourself in a friendly manner and let the child know what they can call you. Ask the child their name, how old they are, and other conversational questions to distract them from the trauma they may have experienced during the disaster or the rescue. Questions about where they go to school or the names of their best friends will be helpful as well as calming. Riding in a basket up to a helicopter may be either a fun or a frightening experience, for instance. Try to gauge the child’s fear or excitement and respond to it personally.
Ask children to help	Resilience is improved when people can regain a sense of efficacy and control during stressful times. Depending on the child’s age, maturity, and emotional state at the time, consider whether there is a little thing you can ask a child to do, such as hold something or give you a hand. Do not pressure the child to help, but, when possible, let them help in some small and meaningful way to the extent of their ability. Especially in circumstances where the child and the caregivers do not share a common language, tasks are calming (and can be communicated through gestures).

<p>Provide clear and factual information</p>	<p>Uncertainty adds to fear and stress. Provide children and adults clear and factual information about what you are doing, where they are going, and what is going to happen to them. If you do not know the answers to their questions, respond with “I don’t know yet, but let’s find out.” Talk to them in simple and age-appropriate language. Give a teenager more information than a younger child. If they ask questions, answer with patience and respect and encourage their curiosity.</p>
<p>Remain patient and calm</p>	<p>If the child is visibly upset, try to stay patient and calm. Younger children may be distracted and calmed if you offer a small toy to play with. If in the immediate situation there are no toys, ask one child to help another. If they are too distraught to focus on your instructions or pose a danger to themselves or others, try speaking in a soft voice so they have to listen closely to hear you. Singing lullabies is deeply reassuring to the child. If you are a rock of stability and can provide reassurance, your calmness may be catching.</p>
<p>Protect children from invasive media coverage</p>	<p>While there may be photographers and journalists present at rescue points or delivery sites, protect children from invasive and aggressive contacts that may be upsetting. Direct media away from children and distressed families.</p>
<p>Ensure secure delivery of survivors (continuum of care)</p>	<p>When delivering or transferring children to a place of safety, introduce them by name to the next responsible adult and ensure all information has been handed off and that they are in secure custody of the next responsible party in the continuum of care. If you succeeded in making an emotional connection with the child, be sure to give them a respectful goodbye. Get down on their eye level, say their name, and assure them that their new custodian will take good care of them; shake hands or give them a hug. Do not prolong the goodbye but convey that you have been glad to meet them and wish them well.</p>
<p>Do not impose false expectations of resolution on any adult or child</p>	<p>In a catastrophic incident, you as a first responder or volunteer may have expectations of response which cannot be met under the immediate and actual circumstances. It is very important that you do not convey to the child or any adult in your care an expectation that may prove false. Timelines are especially disappointing. Instead of saying the situation will be resolved in a specific time frame, offer to help the time go quickly, or ask the child for suggestions of things to do while waiting. Do not make promises that you personally cannot fulfill.</p>

**Constantly
reassure in words
and deeds**

Everyone in a catastrophic incident needs to know they themselves can contribute to the rebuilding of normalcy, and that they are valued for that contribution. Reassuring others helps to begin the process of recovery even prior to rescue. Physical tasks are particularly helpful in providing reassurance. “Let’s build a shelter”, “Shall we find out who needs dry socks”; these are all things that can keep things practical and build confidence.

National Emergency Child Locator Center (NECLC)

In October 2006, Congress and President George W. Bush established the NECLC. The NECLC will assist in the location of children and the reunification of families resulting from the disaster or subsequent evacuations.

In the event of a natural disaster, the NECLC will:

- Establish a toll-free hotline to receive reports of displaced children;
- Deploy staff to the location of a declared disaster area to gather information about displaced children and provide technical assistance to find missing children;
- Provide information to the public about additional resources;
- Partner with federal, state, and local law enforcement agencies; and
- Refer reports of displaced adults to the Attorney General’s designated authority and the National Emergency Family Registry and Locator System.

Additional Resources

Since Hurricane Katrina, new capabilities are emerging at multiple levels to address the needs of children in disaster.

At the Federal Government level, the National Commission on Children and Disasters, FEMA’s Working Group on Children in Disasters, and the Administration on Children and Families of the U.S. Department of Health and Human Services, may all be good resources of information on addressing children’s needs in disasters.

Private sector organizations such as Project K.I.D., the National Institute for Urban Search and Rescue (NIUSR), Disaster Children’s Services (Church of the Brethren), the National Center for Missing and Exploited Children, the American Red Cross, the National Center for Disaster Preparedness (Columbia University) and Save the Children may also be of assistance.

Project K.I.D.

Project K.I.D. is working to develop state and local based PlayCare Response Teams to provide guidance and assistance to first responders in meeting the needs of children during the earliest hours and days of a disaster. Project K.I.D. has a variety of documents and after-action reports available.

877-846-7529

holdsafe@gmail.com

Table 3-5: Unaccompanied Minor Intake Questionnaire

Unaccompanied Minor Intake Questionnaire

ARRIVAL INFORMATION

ARRIVAL DATE: _____ ARRIVAL TIME _____

FROM _____

RESPONDER INTERVIEW:

DESCRIBE CIRCUMSTANCES IN WHICH CHILD WAS FOUND (location, other people, mode of rescue, etc.):

Signature of Person Delivering Child

Date

Agency

CHILD INTERVIEW:

1. CHILD'S NAME _____

2. SEX _____ DOB _____ BEST AGE GUESS IF NO ID _____

3. TYPE OF IDENTIFICATION _____

4. WITH WHOM DOES THE CHILD LIVE (MOTHER, FATHER, GRANDMOTHER...?)

5. WHERE DO PARENTS/GUARDIAN WORK?

6. PHONE NUMBERS OF PARENTS/GUARDIAN (or other numbers the child knows)

Name # (____) _____
Phone

Name # (____) _____
Phone

Name # (____) _____
Phone

7. HOME ADDRESS

8. RELATIVES (WHO-WHERE DO THEY LIVE)

9. WHERE DOES THE CHILD GO TO SCHOOL? TO CHURCH? TO SHOP?

10. PHYSICAL APPEARANCE

EYE COLOR _____ HAIR COLOR _____ HAIR STYLE _____

TYPE OF CLOTHES (COLOR- STYLE-CONDITION)

TOP _____

PANTS _____

SHOES _____

11. PERSONAL POSSESSIONS – IF NO ID (DESCRIBE TYPE, COLOR, QUANTITY)

12. SPOKEN LANGUAGE _____

13. IDENTIFYING EXPRESSIONS OR PHYSICAL CHARACTERISTICS, FAVORITE TOY, OR HOBBY

14. ANY OTHER IDENTIFYING INFORMATION THE CHILD CAN PROVIDE

15. DOES THE CHILD PRESENT ANY EMERGENCY MEDICAL NEEDS

16. DOES THE CHILD HAVE ANY PRE-EXISTING HEALTH CONDITIONS? REGULARLY TAKE MEDICATION?

NOTIFICATION OF AUTHORITIES/CASE NOTES

Please maintain a detailed record of authorities contacted and response

Contact Made With	Date/Time
Discussion	
Result	

Contact Made With	Date/Time
Discussion	
Result	

Section 3-6: Animals

Any attempt to capture animals can be potentially dangerous.

Always use caution when approaching animals. Some animals may bite or show aggression even if not provoked. It is best if trained disaster personnel experienced in animal behavior attempt to rescue animals. Therefore, it is prudent to develop a current list of qualified animal rescuers who can assist CISAR responders.

State, Tribal, Territorial/Insular Area, and local plans should provide for handling and care of rescued animals. For example, local animal control officials may be able to provide trained and equipped personnel to assist with animal control and rescue, including aggressive and difficult-to-access animals and unusual or exotic pets such as snakes.

Ultimately, the person in charge of the CISAR aircraft, boat, or response team should make the final decision concerning the rescue of animals.

Animal Rescue

No animal rescue activities should be attempted by CISAR responders on scene when, in their judgment, such activities would risk the lives or safety of themselves or others, or possibly create critical delays in rescuing persons in distress. Otherwise, animals should be rescued or assisted as practicable.

Animal Transportation Risks

Great care must be exercised in transporting animals in CISAR operations.

Transport of animals by CISAR responder aircraft, boats, and response teams can pose a problem, depending upon the size, health, and temperament of the animal(s).

CISAR responders should not be placed at increased risk to rescue animals.

Animals in Table 3-6: Animal Categories may be encountered during CISAR operations.

Table 3-6: Animal Categories

Animal Categories^{13,14}	
Animal Type	Definition
Companion Animals	Household Pet: A domesticated animal, such as a dog, cat, bird, rabbit, rodent, or turtle that is traditionally kept in the home for pleasure rather than for commercial purposes, can travel in commercial carriers, and be housed in temporary facilities. Household pets do not include reptiles (except turtles), amphibians, fish, insects/arachnids, farm animals (including horses), and animals kept for racing purposes.
Service/Assistance Animals	Any guide dog, signal dog, or other animal individually trained to aid an individual with a disability including, but not limited to, guiding individuals with impaired vision, alerting individuals with impaired hearing to intruders or sounds, providing minimal protection or rescue work, pulling a wheelchair, or fetching dropped items.
Livestock and Farm Animals	Mainly provide food for human or animal consumption.
Wildlife	Wildlife primarily lives independent of human control and rely on individual ability to obtain food or water.
Captive Animals	Captive animals live in zoos or aquariums and that might otherwise be endangered wild animals, and in research facilities, and which are totally dependent on humans for survival.

Service and Companion Animals

Ideally, service or companion animals should be rescued along with their owners, with priority given to service animals that are essentially an extension of a disabled person. Rescue of service animals can mean the difference between a person who requires assistance from shelter staff and a person who can function independently.

Safety of human life is always the first consideration even when there is a service animal involved. If the only choice is between transporting a service animal with an individual who has a disability or rescuing the disabled individual and another person, the human always has priority.

¹³ Disaster Assistance Policy DAP9523.19: Eligible Costs Related to Pet Evacuations and Sheltering (24 Oct 2007)

¹⁴ Department of Justice, Americans with Disabilities Act (ADA), 42 USC 1201 et seq, implementing regulations at 28 CFR 36.104

Ideally, the service animal can be retrieved later and reunited with its owner.

If service or companion animals cannot be rescued along with their owners, CISAR responders should provide information on the animals and their location for subsequent recovery by animal rescue services and rejoined with their owners.

Identifying Service Animals

Some, but not all service animals wear special collars and harnesses. Some of these animals are licensed or certified and have identification papers. However, availability of relevant documentation should not be a condition of providing SAR services. The person with the animal should be asked whether the animal is required because of a disability.

Regardless of the animal's category, any animal should be left behind that poses a direct threat to the health or safety of people or the transport vehicle, such as when the animal is exhibiting anxiety or potentially vicious behavior.

Livestock, Wildlife, and Captive Animals

There are many situations where livestock, wildlife, or captive animals might be encountered during CISAR operations. For example, animals that are an apparent threat to human safety should be reported and avoided, or be confined, sedated, or killed if necessary. Sound judgment must be exercised in dealing with such animals.

Livestock or confined animals might be able to avoid threats such as fire or flooding if they were free. The simplest solution may be to release these types of animals for capture later. CISAR responders should seek advice from the Incident Command as required.

CISAR Responder Practical Considerations

The following are some practical considerations CISAR responders can take when animals are encountered:

- Possible warning signs that an animal is about to attack may include tail high and stiff, ears up, hair on back standing up, barking, and showing teeth (Even the friendliest dog can bite or attack when in fear and/or in pain);
- For non-aggressive animals, use an approved muzzle, slip collar, leash and/or food lures;
- For aggressive, unpredictable animals, use snare poles, restraints, and humane traps, or sedation when appropriate;
- To help avoid animal bites, remain as still as possible, avoid direct eye contact, and put something between you and the aggressive animal such as a trash can lid;
- If you fall and an animal attacks, protect your head, curl into a ball with your hands over

your ears, and remain motionless;

- If attacked or bitten by a dog, use repellent, wash wounds immediately with soap, seek immediate medical help, and secure and observe offending dog if practicable;
- Capture animals using humane live traps, catch poles, leashes, cages, and appropriate strength ropes; and
- Use appropriate bite-resistant gloves and maintain a properly equipped first-aid kit.

Animal Response Teams

The Humane Society of the United States ([HSUS](#)) is a good resource of information about organizations that can assist with animal rescue and care needs.

The HSUS maintains National Disaster Animal Response Teams ([NDART](#)) that provide assistance during catastrophic incidents. These teams:

- Serve as a resource for individuals, animal-related organizations, government agencies, and others concerned about the urgent needs of animals before, during, and after disasters; and
- Assist with animal rescue, handling, and transport.

Section 3-7: Handling of Human Remains

CISAR responder discovery of human remains is likely in large-scale incidents. A key principle in CISAR operations is to give priority to the living over the dead.

Handling of Human Remains

CISAR responders may be required to handle human remains. Searching for and recovering bodies should be conducted with respect and dignity, according to applicable customs, laws, and regulations. The location of any remains should be marked and reported to the IC to ensure that the proper authorities are notified for recovery, identification, and disposition.

SAR authorities may also need to have plans and agreements in place with other entities to handle human remains. Such arrangements should be incorporated into State, Tribal, Territorial/Insular Area, and local emergency plans.

Physical Health Risks from Human Remains

Past disasters have demonstrated that the risk of epidemic disease transmission from human remains is negligible. Unless the affected population was already experiencing a disease suitable for epidemic development, a CISAR environment should not create such a situation. Most disaster victims die from traumatic events and not from pre-existing disease.

Typical pathogens in the human body normally die off when the host dies, although not immediately. Risk of transmission is no greater than that for routine handling of human remains. However, water supplies contaminated with decaying human remains can serve as a method of transmission of illnesses.

Human Remains and the CISAR Responder

In CISAR operations, if people are in distress and require assistance, the CISAR responder must make saving lives the priority. Notify the Incident Command of the location any human remains and continue CISAR operations.

Handling human remains may be subject to Agency specific guidance.

Direct Contact with Human Remains

Human remains may contain blood-borne viruses and bacteria. These viruses and bacteria do not pose a risk to someone walking nearby, nor do they cause significant environmental

contamination.

In flood water, bacteria and viruses from human remains are a minor part of the overall contamination that can include uncontrolled sewage, a variety of soil and water organisms, and household and industrial chemicals. There are no additional practices or precautions for floodwater related to human remains, beyond what is normally required for safe food and drinking water, standard hygiene, and first aid.

However, for people who must directly handle remains, such as CISAR responders while conducting CISAR operations and recovery personnel, there can be a risk of exposure to such viruses or bacteria.

Precautions When Handling Human Remains

CISAR responders who must handle human remains should use the following precautions:

- Protect your face from splashes of body fluids and fecal material. Use a plastic face-shield or a combination of eye protection (indirectly vented safety goggles are a good choice if available; safety glasses provide only limited protection) and a surgical mask. In extreme situations, a cloth tied over the nose and mouth can be used to block splashes (be advised that a cloth can absorb splashes);
- Protect your hands from cuts, puncture wounds, or other injuries that might break the skin and allow for direct contact with body fluids. A combination of cut proof inner layer glove and a latex or similar outer layer is preferable. Wash your hands with soap and water, or with an alcohol-based hand cleaner immediately after you remove your gloves. Appropriate footwear should similarly protect against sharp debris;
- Appropriate PPE should be worn during procedures that are likely to generate splashes of blood or other body fluids;
- Give prompt care, including immediate cleansing with soap and clean water. A tetanus booster should be provided to personnel when wounds are sustained during work with human remains; and
- Notify the Incident Command if exposed to hazardous conditions.

Table 3-7: Human Remains - Infectious Disease Risks Summary summarizes the primary issues concerning handling of human remains.

References

For additional information, the following sources were used in compiling this guidance:

- U.S. Department of Health and Human Services, *Interim Health Recommendations for Workers who Handle Human Remains*

- World Health Organization, *Disposal of dead bodies in emergency situations*
- Pan American Health Organization, *Management of Dead Bodies After Disasters: A Field Manual for First Responders* (Washington D.C.: PAHO)

Table 3-7: Human Remains - Infectious Disease Risks Summary

Human Remains - Infectious Disease Risks Summary	
Overview	After most natural disasters there is fear that dead bodies will cause epidemics. However, human remains do not normally cause epidemics after natural disasters.
Infections and dead bodies	At the time of death, victims are not likely to be sick with epidemic-causing infections (i.e., plague, cholera, typhoid). Some may have chronic blood infections (hepatitis or HIV), tuberculosis, or diarrheal disease. Most infectious organisms do not survive beyond 48 hours in a dead body. An exception is HIV which has been found six days postmortem.
Risk	<p>Individuals handling human remains may have a small risk through contact with blood and feces (bodies often leak feces after death) from the following:</p> <ul style="list-style-type: none"> • Hepatitis B and C; • HIV; • Tuberculosis; and • Diarrheal disease. <p>Individuals working in hazardous environments (e.g., collapsed buildings and debris) and may also be at risk of injury and tetanus (transmitted via soil).</p>
Safety precautions	<p>Basic hygiene protects workers from exposure to diseases spread by blood and certain body fluids. Workers should use the following precautions:</p> <ul style="list-style-type: none"> • Use gloves and boots, if available; • Wash hands with soap and water after handling bodies and before eating; • Avoid wiping face or mouth with hands; • Wash and disinfect all equipment, clothes, and vehicles used for transportation of bodies; • Face masks are unnecessary, but should be provided if requested to avoid anxiety; • The recovery of bodies from confined, unventilated spaces should be approached with caution. After several days of decomposition, potentially hazardous toxic gases can build-up. Time should be allowed for fresh air to ventilate confined spaces.

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Section 3-8: Handling of Animal Remains

CISAR responders may come in contact with dying or dead animals. The cleanup of animal carcasses is not normally a primary responsibility of CISAR responders, but it is necessary to understand the risks associated with the handling of animal remains.

Many of the issues about human corpses directly correspond to those relating to animal corpses. Animals, however, may spread diseases among humans.

During lifesaving operations, the location of animal remains should be reported to the IC to ensure appropriate authorities are notified for proper disposition.

Health Risks from Animal Remains

In most cases, the bodies of dead animals pose little risk to humans. Animal corpses constitute a public health hazard only in specific conditions. However, animals that have had a specific communicable disease, may pose a risk to humans.

Zoonoses¹⁵ are becoming an increasing threat to human populations. However, most zoonotic infections do not survive in the dead body of an animal. Like diseases that survive in the human remains, zoonotic diseases from animal carcasses must occur in an endemic area for that disease if they are to present any risk. If the area is not endemic for the disease, the probability of animal carcass-to-human transmission is very low.

Two situations exist in which an animal carcass can be a risk for humans:

- The presence of specific infectious agents; and
- The contamination of water by feces and discharge from lesions.

In the two above scenarios, there is still little risk to CISAR responders. A series of coexisting factors must be present for the animal bodies to constitute a risk for humans:

- First, the animal must be infected with a disease that can be transmitted to humans;
- Second, the germ must be able to survive the death of the host; and
- Third, the environment must facilitate the spread of the infectious agent (e.g., contaminated water).

Any interruption in this chain of events results in there being a minimal public health hazard.

¹⁵ Zoonose is any infectious disease that can be transmitted from animals, both wild and domestic, to humans or from humans to animals.

Moreover, the presence of animal carcasses alone should not be associated with the spread of infectious diseases.

Decomposing Animal Remains

There is only a short window of time for proper disposal of animal carcasses following their death. Within 7-10 days of death, animal carcasses become too decomposed to handle easily with disposal equipment such as front loaders.

Depending on the type of disaster and location, CISAR responders may encounter problems with decomposing animal carcasses as areas are searched for human survivors. Although animal corpses pose a minimal health risk, the proper disposal of animal remains is important after the initial response to the disaster.

Additional information can be obtained from the following sources:

- Pan American Health Organization, *Management of Dead Bodies in Disaster Situations* (Washington D.C.: PAHO,)
- Dee B. Ellis, *Carcass Disposal Issues in Recent Disasters, Accepted Methods, and Suggested Plan to Mitigate Future Events* (Southwest Texas State University,)

Section 3-9: Media and Public Relations

During CISAR operations, the public and media should be informed, within the limits of confidentiality, of ongoing CISAR operations. Some potential benefits of early release of information include:

- The possibility to obtain additional, useful information from the public to enable more effective use of CISAR resources;
- Fewer time-consuming requests from the news media; and
- Reduction in inaccurate public speculation about ongoing operations.

A CISAR operation often creates great interest with the public and the media.

IAMSAR Manual (Volume 2) and FEMA's NIMS training have considerable information relevant to media and public relations for CISAR responders. This information can help enhance media and public relations effectiveness and avoid troublesome mistakes.

Relationships

SAR-related contacts with media, which can take many forms, are normally the responsibility of managers, public affairs specialist, or assigned to a Joint Information Center (JIC). Ensure that the media knows who is responsible for coordinating CISAR operations. It is important to establish a good relationship between the media and response authority to ensure that information reaching the public is factual and complete. This relationship should be established prior to any major incident. The responsible CISAR authority should partner with the media to communicate the overarching message, services provided, and impact on the community.

Release of names to the media can be a sensitive issue. Names of casualties should not be released until every effort has been made to contact family relatives. Until the relatives have been notified, normally only the number of deceased, survivors, and injured survivors should be released. Names of military casualties should be released only by the military service to which the casualties belong. Names of survivors should not be released until positive identification has been accomplished.

The SMC should be aware of the concerns of the relatives of missing persons. Waiting during searches and lack of information can be stressful for family members of those in distress. During the search, the SMC or staff should maintain regular contact with relatives to provide information and outline future plans. If possible, contact telephone numbers should be issued for relatives.

These steps assist the relatives in accepting the SMC's decision to conclude CISAR operations

even if the missing persons are not located.

NIMS Public Information Guidance

In NIMS, the Public Information Officer (PIO) and the Joint Information Center (JIC) help the IC and SMC manage the flow of public information.

Public Information Officer (PIO)

The PIO is a key member of the command staff. The PIO advises the IC on public information matters related to the management of the incident, including media and public inquiries, emergency public information and warnings, rumor monitoring and control, media monitoring, and other functions required to coordinate, clear with proper authorities, and disseminate accurate and timely information related to the incident. The PIO ensures that decision makers and the public are fully informed throughout a domestic incident response.

Joint Information Center (JIC)

Establishment of a JIC is an effective means of disseminating public information. Using the JIC as a central location, CISAR information can be coordinated and integrated between the CISAR response organizations. Prompt establishment of a JIC away from the SMC will help to achieve this goal. The JIC can establish proper procedures for releasing information to the public and how the information will be released. Since the information may be sensitive, it is critical that everyone communicates the same information.

Media On Scene

The media is a 24-hour global market, with news broadcast worldwide. The media will find a way to get to the scene for first-hand information, pictures, and video. By providing media transportation to the scene, safety can be improved, and the media can be more effectively informed and supported.

Section 3-10: CISAR Exercises

Since opportunities to handle actual incidents involving CISAR operations are rare and challenging, exercising CISAR plans is particularly important. Mass evacuation and CISAR operations may be difficult and costly, and the number of authorities involved in the response leads to complexity.

CISAR exercises should ideally achieve the following objectives:

- Test implementation of planned command authorities and functions;
- Analyze how to account for all survivors until they are delivered to a place of safety and can return to their homes;
- Identify and task available SAR resources and local resources such as hospitals, fire departments, and other community and transportation resources;
- Evaluate notification processes, resource availability, timeliness of initial response, real-time elements, conference capabilities and overall co-ordination;
- Ensure all agency roles are sorted out, understood, and properly implemented;
- Test capabilities of potential OSCs and aircraft coordinators and ability to transfer OSC duties;
- Evaluate span of control;
- Assess evacuation of an area or facility;
- Co-ordinate activities and achieve information exchanges;
- Practice communication by all available:
 - Information for all concerned (identify, merge, purge, retrieve and transfer to the right place in the right form at the right time);
 - New communication and information management technologies;
 - Media and next-of-kin; and
 - Test all communication links that may be needed for notification, coordination, and support.
- Ensure medical capabilities including the transfer and care for passengers;
- Assess the ability to conduct medical triage and provide first aid;
- Exercise co-ordination with local response agencies;
- Test how to provide food, water, and protective clothing to survivors;
- Test plans for mass rescue operations;

- Assess how effectively earlier lessons learned have been accounted for in updated plans and how well these lessons were disseminated;
- Exercise external affairs, such as international and public relations:
 - Necessary participants involved;
 - JIC established quickly and properly staffed; and
 - Press briefings handled effectively (e.g., consistent information from different sources).
- Test how rescued persons will be tracked, kept informed, have needs monitored, and eventually be reunited with belongings.

Planning

The following steps are normally carried out during exercise planning:

- Agree on the exercise scenario, goals, and extent;
- Assemble a multi-disciplinary planning team and agree on objectives for each aspect of the exercise;
- Develop the main events and associated timetables;
- Confirm availability of agencies to be involved, including any media representatives or volunteers;
- Confirm availability of transportation, buildings, equipment, aircraft, ships, or other needed resources;
- Test all communications that will be used, including tests of radio and mobile phones at or near the locations where they will be used;
- Identify and brief all participants and people who will facilitate the exercise, and ensure that facilitators have good independent communications with person who will be controlling the exercise;
- Ensure that everyone involved knows what to do if an actual emergency should arise during the exercise;
- If observers are invited, arrange for their safety, and to keep them informed about the exercise progress;
- For longer exercises, arrange for food and toilet facilities;
- Use “exercise in progress” signs, advance notifications, and other means to help ensure that person not involved in the exercise do not become alarmed;
- Schedule times and places for debriefs;
- Agree and prepare conclusions and recommendations with the entity responsible for handling each recommendation along with the due date for any actions;

- Prepare a clear and concise report and distribute it as appropriate to the participating organizations; and
- Consider the outcome of this exercise in planning future exercises.

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Section 3-11: Natural Disasters

National efforts to ensure resilience in the U.S. are focusing on improving existing catastrophic event preparedness capabilities, but with a renewed conviction to plan for the most extreme disasters. For ESF #9 and the response to catastrophic incidents, activation of ESF #9 for the conduct of CISAR operations are primarily (but not exclusively) due to natural disasters.

Natural disasters that frequently occur and tend to require Federal ESF #9 CISAR support are:

- Earthquakes;
- Flooding;
- Hurricanes;
- Tornadoes; and
- Tsunamis.

Considerations for other scenarios that may require Federal ESF #9 CISAR support might include the following and are outlined in Section 3-12: Pandemics and Epidemics and Section 3-13: Cyber-Kinetic Attacks and Degradation of SAR Systems:

- Pandemics and infection disease incidents;
- Cyber-attacks resulting in kinetic destruction of critical infrastructure that can cause mass injuries and casualties, environmental and operational health, and safety concerns; and
- Degradation of systems, satellites, infrastructure, or other C2 capabilities needed to plan or manage SAR operations, whether by deliberate cyber-attack or failing infrastructure.

CISAR Coordination Does Not Change

How Federal, State, Tribal, Territorial/Insular Area, and local agencies respond to any given scenario is unique. The nature of or the circumstances within the incident will always drive operational priorities and execution, and those will often vary from one disaster scenario to another – and even between multiple disasters of the same type (e.g., multiple hurricanes). Having a basic understanding of each type of disaster and the potential impact it could have on a community can substantially assist the CISAR responder in saving lives.

It is important to remember, however, that CISAR does not change. How CISAR operations are coordinated, managed, and integrated across ESF #9 and Federal, State, Tribal, Territorial/Insular Area, and local entities does not change from one scenario to another.

None of the guidance in this section is meant to replace agency-specific policy and doctrine thorough preparedness, best practices, training, or exercises. It is meant to provide foundational knowledge about how these scenarios might impact SAR operations. Knowing time is of the essence when responding to disaster, CISAR responders should always still take time to understand the environment, work together, assess the risk, and remain safe.

Earthquake Considerations for CISAR

Earthquakes can cause buildings and bridges to collapse, disrupt gas, electric, and phone service, and sometimes trigger landslides, avalanches, flash floods, fires, and tsunamis. Buildings with foundations resting on unconsolidated landfill, old waterways, or other unstable soil are most at risk. Buildings or trailers and manufactured homes not tied to a reinforced foundation anchored to the ground are also at risk since they can be shaken off their mountings. When internal load-bearing elements fail, a building will collapse into itself and exterior walls are pulled into the falling structure, which may result in a dense debris field with a small footprint.

The structural and infrastructure damage caused by earthquakes can be devastating, leaving innumerable people in need of search and rescue assistance. Most earthquake-related injuries result from collapsing walls, flying glass, and falling objects due to ground shaking or people trying to move more than a few feet during the shaking. Both foreshocks and aftershocks (smaller earthquakes that precede or follow the main earthquake) can also cause damage to weakened buildings.

Structural collapse creates many hazardous conditions for CISAR responders. The best methods to reduce the risk of injuries or illness during a CISAR operation are prevention and avoidance. CISAR responders can reduce the risks inherent in CISAR operations through knowledge and awareness of potential hazards.

Consider the following:

- Be aware of aftershocks that can cause further damage to weakened buildings and pose considerable risk to CISAR responders;
- Collapsed structures may present the risk of falling, which could result in injury or death;
- Working in elevated situations may require the use of barrier lines to prevent access to dangerous edges, the use of safety lines to belay persons at risk of falling, wearing safety equipment, and the designation of a Safety Officer;
- Any surface that must be negotiated where there is the potential for a fall or loss of control is unstable and may not have the strength to support a CISAR responder's weight (Any questionable or untested surface must be considered hazardous. These areas must be identified and either made safe or avoided.);
- Unstable surfaces may be caused by slippery materials such as water or oil on a concrete or metal surface (These problems may be mitigated by identification, using safety equipment, avoidance of the area, reducing exposure in the area, or removal of the

hazard.); and

- CISAR responders need to be aware of the following hazards and proceed with caution when entering a collapsed structure:
 - Water system breaks may flood basement areas;
 - Exposure to pathogens from sanitary sewer system breaks;
 - Exposed and energized electrical wiring;
 - Exposure to airborne smoke and dust (e.g., asbestos, silica, etc.);
 - Exposure to blood borne pathogens;
 - Exposure to hazardous materials (e.g., ammonia, battery acid, leaking fuel, etc.);
 - Natural gas leaks creating a flammable and toxic environment;
 - Structural instability;
 - Insufficient oxygen;
 - Confined spaces;
 - Slip, trip, or fall hazards from holes, protruding rebar, etc.;
 - Being struck by a falling object;
 - Fire;
 - Proximity to heavy machinery such as cranes;
 - Sharp objects such as glass and debris;
 - Secondary collapse from aftershock, vibration, and explosions; and
 - Unfamiliar surroundings.

Flooding Considerations for CISAR

Floods are one of the most common hazards in the U.S., principally caused by snowmelt and rainstorms. Flood effects can be local, impacting a neighborhood or community, or very large, affecting entire river basins and multiple States.

However, all floods are not alike. Some floods develop slowly, sometimes over a period of days. Flash floods, however, can develop quickly, sometimes in just a few minutes and without any visible signs of rain. Flash floods often have a dangerous wall of roaring water that carries rocks, mud, and other debris and can sweep away most things in its path. Other natural processes, such as hurricanes, weather systems, and snowmelt can also cause floods.

More than half of all fatalities during floods are auto related, usually the result of drivers misjudging the depth of water on a road and the force of moving water (a car can float in just a few inches of water). Six inches of water will reach the bottom of most passenger cars causing loss of control and possible stalling, while a single foot of water will float many vehicles and only two feet of rushing water can carry most away—including sport utility vehicles (SUVs) and

pick-up trucks.

Consider the following:

(Note: see Section 2-12: Boat Operations Management for additional information on conducting boat operations during flooding.)

- Flood water may be electrically charged from underground or down power lines;
- Stay clear of downed power lines (report downed power lines to the SMC/IC);
- Unless a CISAR responder is properly equipped and trained, avoid moving flood water;
- Be aware of areas where floodwaters have receded (Roads may have weakened and could collapse under the weight of a car);
- Use caution when entering buildings (there may be hidden damage, particularly in foundations);
- Flood waters can rearrange and damage natural walkways, as well as sidewalks, parking lots, roads, buildings, and open fields. Never assume that water- damaged structures or ground are stable. Buildings that have been submerged or have withstood rushing flood waters may have suffered structural damage and could be dangerous;
- Fire can pose a major threat to an already badly damaged flood area for several reasons: inoperative fire protection systems, hampered fire department response, inoperable firefighting water supplies, and flood- damaged fire protection systems;
- Assume flood water is contaminated by oil, gasoline, garbage, fecal material from raw sewage, agricultural and industrial waste, etc., and should be considered hazardous material (ICs should consider instituting decontamination protocols for the conduct of flood CISAR operations);
- Chemical contamination of floodwaters can also occur, and contamination levels may be higher nearer to sources such as industrial locations;
- Although skin contact with floodwater does not, by itself, pose a serious health risk, CISAR responders should avoid direct contact with standing water, when possible, to minimize the chance for infection;
- There is a risk of disease from eating or drinking anything contaminated with floodwater (The most likely symptoms from an infection are stomach-ache, fever, vomiting, and diarrhea);

- Properly clean and disinfect clothes and equipment that got wet, which can contain sewage and chemicals;
- Wearing wet gloves or PPE can cause skin irritation. Long exposures to wet conditions can compromise the function of the skin barrier. Repeated use of impermeable gloves, especially in hot and humid conditions, can aggravate skin rashes. Cotton liners are sometimes used under protective gloves to improve comfort and to prevent dermatitis. Latex gloves should be avoided because of the risk of developing skin sensitivity or allergy;

Persons in Distress vs. Isolated Person

Person in distress: There is reasonable certainty that a person is threatened by grave and imminent danger and requires immediate assistance.

Isolated person: In an ESF #9 incident only, any non-distressed people stranded by an incident within a specific area or residence but where immediate assistance is determined not to be required.

In flooding disasters, SAR planners must weigh the operational risks to SAR responders concerning immediate assistance to persons in distress vs. isolated persons who are stranded due to the disaster. Isolated persons still require support, especially to ensure they do not become persons in distress over time. However, SAR planners should give higher priority to survivors in distress situations.

- If skin contact with flood water does occur, use soap and water to clean exposed areas. Waterless alcohol-based hand rubs can be used when soap or clean water is not available. Hands should be washed after removal of gloves;
- CISAR responders in flood events should use personal flotation devices when conducting operations within 10 feet of flood water;
- Consider that lifejackets and wetsuits used in polluted flood water as throw away items at the end of the operation;
- CISAR responders in flood operations should have Hepatitis inoculations and current tetanus;
- Do not drink the tap water. Floods are notorious for fouling municipal water systems. Ensure there is plenty of drinking available water.
- The combination of potentially cold water and exertion may not only exhaust CISAR responders, but cause dehydration as well. Drinking water during flood operations can quickly become a concern;
- Flood water poses drowning risks for CISAR responders and persons in distress, regardless of their swimming ability. Swiftly moving shallow water can be deadly, and even shallow standing water can be dangerous for small children. Rules of thumb:

- Moving Water: Six inches of water can sweep most people off their feet and into the current; and
- Standing Water: Operations in standing water greater than “knee deep,” will require amphibious vehicle, small boat, and/or helicopter operations.
- Flood waters can displace animals, insects, and reptiles. Be alert and avoid contact;
- Open wounds and rashes exposed to flood waters can become infected. Cover open wounds with a waterproof bandage. Keep open wounds as clean as possible by washing well with soap and clean water. If a wound develops redness, swelling, or drainage, seek immediate medical attention; and
- Protracted CISAR operations in cold water, cold weather, or rain can quickly sap the efficiency of CISAR responders. Injuries are often the result of exposure and exhaustion. Standing or working in water that is cooler than 75 degrees F (24 degrees C) will remove body heat more rapidly than it can be replaced, resulting in hypothermia. See the section on Health and Safety for more information on managing risk associated with hypothermia and related conditions.

Hurricane and Typhoon Considerations for CISAR

A hurricane is the most severe category of the meteorological phenomenon known as the “tropical cyclone” (“hurricane” and “typhoon” are regionally specific tropical cyclone names). Tropical depressions, tropical storms, and hurricanes are all forms of tropical cyclones, differentiated only by the intensity of the associated winds. Depressions have maximum sustained winds of 38 mph or less; tropical storms, 39-73 mph; and hurricanes 74 mph or higher.

The main hazards associated with tropical cyclones and especially hurricanes are storm surge, high winds, heavy rain, flooding, and tornadoes.

Cyclones begin to decay when:

- Wind shear tears it apart;
- The storm moves over cooler water or drier areas that can lead to weakening; or
- Storms move over land, which typically shuts off a hurricane’s main moisture source and the surface circulation can be reduced by friction as it passes over land.

Generally, a weakening hurricane or tropical cyclone CAN re-intensify if it moves into a more favorable region or interacts with mid-latitude frontal systems.

Points of consideration for hurricanes and typhoons (see earlier guidance on flooding for additional considerations):

- The official hurricane season varies depending on region:

- May 15 to November 30 in the Eastern Pacific;
- June 1 to November 30 in the Central Pacific; and
- June 1 to November 30 in the Atlantic.
- During an average season, ten tropical storms will develop in the Atlantic Basin, of which six will become hurricanes. Many of these will remain over the ocean and not affect any landmass. However, about five hurricanes strike the U.S. coastline every three years. Of these five, two will be major hurricanes (Category 3 or greater). All five storms will move inland to begin a decaying process, producing torrential rains, flooding, and flash flooding many miles from their impact points on the coast.
- In addition to wind, tornadoes, and storm surge flooding, CISAR responders need to be aware of inland freshwater flooding.
- Tropical cyclones can have life-threatening effects hundreds of miles inland.
- Factors affecting inland flooding caused by hurricanes include:
 - Storm speed – the slower the system moves, the more time for the rains to fall over a location.
 - Orography – lifting of the warm, moist tropical air over geographical barriers such as hills and mountains. Also, the gradual increase in elevation as the system moves inland amplifies and intensifies the rain.
 - Interaction with other weather features – for example, Hurricane Agnes (1972) fused with another storm system and produced floods in the northeast that caused 122 deaths; and
 - Antecedent conditions – the wetness or dryness of the soil, the existing capacity of streams, rivers, ponds, lakes, and reservoirs.

Tornado Considerations for CISAR

Although tornadoes occur in many parts of the world, they are found most frequently in the U.S. east of the Rocky Mountains during the spring and summer months. In an average year, 800 tornadoes are reported nationwide, resulting in 80 deaths and over 1,500 injuries. The most violent tornadoes are capable of tremendous destruction with wind speeds of 250 mph or more. Damage paths can be more than one mile wide and 50 miles long.

Tornadoes occasionally accompany tropical storms and hurricanes that move over land. Tornadoes are most common to the right and ahead of the path of the storm center as it comes onshore. Tornadoes are also the most violent of all atmospheric storms and may strike quickly with little or no warning.

Most disasters resulting from tornadoes do not typically include ESF #9 Federal SAR assistance. However, the specific circumstances could warrant ESF #9 assistance. Review the considerations for earthquakes in this section for structural collapse and other SAR planning considerations relevant also to tornadoes.

Tsunami Considerations for CISAR

A tsunami (soo-NAH-mee) is a series of traveling ocean waves of extremely long length and generated primarily by earthquakes occurring below or near the ocean floor. They can also be caused by underwater volcanic eruptions and landslides. In the deep ocean, tsunami waves propagate at more than 500 miles per hour, and a wave height of only 1 foot or less.

Tsunami waves are distinguished by great lengths between wave crests, often exceeding 60 miles or more in the deep ocean, and by the time between these crests—10 minutes to an hour. As they reach more shallow waters of the coast, the waves slow down, and the water can pile up into a wall of destruction 30 feet high or greater. The effect can be worse when a bay, harbor, or lagoon funnels the wave as it moves inland. Large tsunamis have been known to rise over 100 feet and move large buildings off their foundations, but even a 3-6-meter-high tsunami can be very destructive and cause many deaths and injuries. Danger from a tsunami can last for hours after the arrival of the first wave.

60% of all tsunamis occur in the Pacific, but they also threaten coastlines of countries in other regions, including the Indian Ocean, Mediterranean Sea, Caribbean region, and the Atlantic Ocean.

Flooding from tsunamis can extend inland by half a mile or more, covering large expanses of land with water and debris. Considerable damage may be caused by floating debris, including boats, cars, and trees that become dangerous projectiles that may crash into buildings, piers, and other vehicles. Ships and port facilities may also be damaged by surge action caused by even weak tsunamis. And fires resulting from oil spills or combustion from damaged ships in port, or from ruptured coastal oil storage and refinery facilities, can cause damage greater than that

CISAR Responders in a Potential Earthquake/Tsunami Impact Region

"If you can see a tsunami, you're too close."

The most common cause of tsunamis is earthquakes. CISAR responders in potential earthquake/tsunami prone regions must heed tsunami advisories in case an earthquake or other disaster occurs that generates life-threatening tsunami waves.

The worst-case scenario is for an earthquake to occur, CISAR responders begin lifesaving operations, and a tsunami wave impacts the affected area.

In addition, CISAR responders need to understand there will be more than one tsunami wave that impacts the affected area minutes to hours later. The initial wave may not be the largest wave.

CISAR responders MUST heed disaster/ earthquake/tsunami warning information.

inflicted by the tsunami wave itself. Other secondary damage can result from sewage and chemical pollution following the destruction. These factors as well as drowning or physical impact or other trauma when caught in the turbulent, debris-laden tsunami waves are common causes of persons in distress and deaths in tsunamis.

Things to consider (see also the guidance above on flooding):

- Most deaths associated with tsunamis are related to drowning, but traumatic injuries are also a primary concern. Injuries such as broken limbs and head injuries are caused by the physical impact of people being washed into debris such as houses, trees, and other stationary items;
- As the water recedes, the strong suction of debris being pulled into large, populated areas can further cause injuries and undermine buildings and services;
- Tsunami flood waters can pose health risks such as contaminated water and food;
- Water quality:
 - As the ocean water comes ashore, drinking water wells can become submerged and potentially contaminated with microorganisms (bacteria, viruses, parasites) and chemicals that can adversely affect human health (sea salts associated with saltwater flooding of coastal drinking water supplies are not an immediate health threat);
 - Because of the unpleasant taste of saltwater, most people will not ingest (swallow) a large enough amount to cause immediate health problems; and
 - Disease-causing microorganisms spread by the flood do not normally produce a strong taste. If water containing disease-causing microorganisms is ingested, even in small amounts, it may cause immediate, life-threatening health problems such as chronic diarrhea, cholera, and serious infections.
- Expect communication problems. Cell phone, radio, and repeater towers may be disabled. Although the actual tsunami waves may have little effect on tower legs and telephone poles (water may flow around and through towers), the debris carried by the tsunamis (e.g., cars, buildings, trees, refrigerators, etc.) smashing into the towers may cause failures;
- Search high as well as low. People may be thrown into trees, on top of buildings, as well as buried under piles of debris;
- Roads may be blocked by debris or washed away. Rescue vehicles may not be able to get far into the affected area. Expect to do a lot of walking. You may have to carry what you need; and
- CISAR responders may find large numbers of bodies or may not find any bodies at all.

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Section 3-12: Pandemics and Epidemics

The world has seen numerous infectious disease outbreaks throughout history. Disease transmission can occur through the air; contact with contaminated people or objects; from food and drinking water; from animal to person contact; or from insect bites. While pandemics are not new, we have increased our knowledge concerning how to respond to them. Such incidents impose unique requirements on responders, escalating considerations about everything from the PPE supply chain to mass rescue operations.

The differentiation between a pandemic and an epidemic is generally one of scope. An epidemic is an infectious disease outbreak that affects a large number of people in a community, region, or country. A pandemic is broader, typically having started as a pandemic before spreading across multiple countries and continents. While the complexity of CISAR operations may vary based on the scope of an infectious disease outbreak, the process and guidance remain the same.

Other Federal agencies provide response strategy and detailed policy for infectious disease outbreak containment and mitigation. This section of the CISAR Addendum addresses some of the considerations SAR responders may face when a pandemic or epidemic has catastrophic incident SAR components to its response or ESF #9 capabilities or coordination are required.

The highest priorities for all CISAR responders during a pandemic are to:

- Save lives;
- Minimize the risk of infection for all personnel; and
- Minimize the risk of infection to all who come into contact with SAR personnel and related services.

Pandemic/Epidemic Considerations for CISAR

Risk assessment in a pandemic or epidemic is uniquely challenging for SAR responders. With or without PPE and even vaccination, infections can potentially spread easily in these types of incidents. That places a premium on minimizing the number of potential exposures as a means of containment.

For CISAR operations whether at the Federal, State, Tribal, Territorial/Insular, or local level, this means carefully assessing how many responders and participating personnel are critical and necessary to achieve the intended objectives—and using only the minimum essential personnel required.

In considering the SAR responders to be used in a given CISAR operation, it is also important to ensure they do not have symptoms of the disease or belong to any of the high-risk groups of people more susceptible to acquiring or spreading disease.

CISAR responders should also be given access to facilities, equipment, parking, or other guidance and resources that help ensure their social distancing from others and access to clean, decontaminated facilities, as needed. Similarly, any equipment or PPE used by responders should be designed for the SAR environment in which it is being used (land, maritime, etc.) so as not to impede SAR operations or increase the risk of potential infectious transmission.

Responding agencies should plan for all potential scenarios and constraints, including:

- Conducting CISAR operations in highly infected communities or communities with a large number of known dead victims;
- Conducting CISAR operations in places in which all healthcare facilities are full, potentially necessitating longer transportation to outlier facilities and thus greater exposure;
- Changes to the SMC's SAR suspension and termination criterion based on elevated risk or other incident-specific or operational factors;
- Designating medical or ICS staging facilities where victims can be safely isolated and monitored, or quarantined if needed—and socially distanced if large numbers of victims are involved;
- Identifying large facilities such as convention centers and sports stadiums that may be useful for staging large numbers of SAR victims;
- Identifying and configuring transportation systems in advance to ensure SAR victims can get to healthcare or other facilities quickly while still minimizing exposure and risk for others involved;
- Quarantining and isolating human remains that may still contain infectious disease that can be transmitted through contact with others; and
- Decontamination or cleaning of all areas, equipment, and facilities regularly between uses by more than one person.

In normal circumstances, CISAR operations are difficult, stressful, high-risk, and demanding of significant resources, equipment, PPE, and training. In a pandemic or epidemic, these factors can be tremendously exacerbated, with PPE supply or inventory alone potentially being severely limited. It will be vitally important to identify and plan for worst case scenarios and to think through how those requirements may shift if you have to adapt how your SAR operations are delivered/implemented.

Most pandemic/epidemic disasters will not typically include ESF #9 Federal SAR assistance. However, the specific circumstances could warrant it and planning for that ahead of time may make all the difference.

Section 3-13: Cyber-Kinetic Attacks and Degradation of SAR Systems

It may initially be difficult to see the connection between SAR and cyberspace. The reality is the world operates with considerable electronic sophistication and dependence, and this is as true in the field of SAR. Responders rely upon computers, servers, mobile apps, and satellites to execute SAR operations. Boats, airplanes, helicopters, and vehicles use navigation systems vulnerable to electromagnetic interference, signal manipulation, or other forms of cyber-attacks. Power generators, cell phones, radios, SCPs, helistops, transportation systems, refueling stations, security and facility access systems, and countless others are potentially vulnerable to cyber incidents.

As the number of cyber-attacks increases, the potential risk that these systems fail during a CISAR response increases. Responders are reliant upon these systems to manage and execute CISAR operations. Failure of these systems will have a negative impact on mission success and potentially result in the loss of life.

Agencies rarely have effective backups for when their own computer networks are offline. Further, organizations that have backups need to ensure these redundant systems are properly tested and responders are proficient in their use.

It would be inaccurate to assume an adversary—not a concept typically thought of in the world of SAR—would *deliberately* attack or deny, degrade, or destroy systems used for saving lives. While there may be room for debate as to whether lifesaving and civil-purpose systems would be an adversary’s deliberate target, it is indisputable that a wide range of systems can become *unintended* targets of a cyber-attack. An adversary most likely may attack another network or system entirely—and that attack in turn causes “cascading effects”. These cascading effects are consequences that ripple from the target across countless other systems directly or indirectly interconnected. This could include the systems and networks used for SAR operations.

It has never been more important for Federal, State, Tribal, Territorial/Insular Area, and local agencies to have a plan for the degradation or unavailability of SAR systems.

Numerous real-world cyber-attacks had impacts far beyond their intended targets. When Ukrainian organizations were targeted by the WannaCry/NotPetya ransomware attack in 2017, it impacted global maritime shipping operations, medical services, mail carriers, pharmaceutical companies, and many other sectors. The impact beyond the intended targets amounted to billions in damages and hundreds of thousands of computers and servers that were far removed from the Ukrainian targets.

Cyber-attacks against public sector agencies and local governments occur in every state and territory. As threats increase in complexity and sophistication, they can increase in severity as well. The Cybersecurity and Infrastructure Security Agency of DHS recognized the growing threat to public safety answering points (PSAPs)¹⁶. Attackers can launch multiple distributed

¹⁶ Cybersecurity and Infrastructure Security Agency, “Cyber Risks to Next Generation 9-1-1,” 2019.

attacks with greater automation from a broader geography and against more targets. In 2018, one of the first such attacks distributed malware via Twitter that crippled 911 and first response capabilities in 12 states.

FirstNet—the national first responder cellular communications program designed to provide continuing service to responders even during catastrophic incidents that degrade public cellular networks—also faces a range of cybersecurity and resilience issues. This further highlights the need for backup or redundant systems.

Everything is interconnected, and even systems used for saving lives are vulnerable.

SAR planners, ESF #9 stakeholders, and agencies at every level of jurisdiction must have a contingency plan for the degradation of the systems they use. In such planning, it is also important to plan for the possibility the data those systems present to users, responders, or decision-makers may be compromised. Many cyber-attacks can impose no system degradation but can modify data in transit or how data is displayed or reported.

With catastrophic incidents, it is also vital to plan for disasters caused by a cyber-attack that directly causes kinetic destruction – such as a cyber-attack that results in large injuries, casualties, and a need for a large-scale CISAR response.

Attacks to energy grids are especially problematic due to the modern reliance on electricity for basic needs. A large-scale attack could potentially hurt 100 million people. Businesses, hospitals, grocery stores, gas stations, and other facilities would be unable to operate without power. Generators would be brought in, but their number is limited and gas lines, refueling may be challenging. There are also potentially weeks to months of energy system restoration efforts required before power can be made available again following a catastrophic incident of such magnitude. There are also the immediate casualties and injuries of potentially hundreds of people at or near the disaster site. There are environmental and CBRN contamination problems. No one even knows it was a cyber-attack that started this until weeks after the disaster when an analysis of what happened can begin. That means the same malware that caused this could also be in other systems or other facilities but not yet executed.

As daunting as these incidents can be on their own, there is a possibility that a malicious actor will use a CISAR disaster (such as a hurricane or earthquake) to initiate a large-scale cyber-attack. Communities are especially vulnerable in the immediate aftermath of a disaster. The fundamental services communities rely on to operate may already be compromised or completely shut down. CISAR requirements and incident complexities easily compound in these kinds of incidents. Systems that responders use may become comprised during life-saving operations, requiring a change of tactics. The cascading effects of an attack in such a situation could further delay response operations and hinder recovery.

CISAR responders in all jurisdictions must begin developing contingency plans and exercising for the kinds of SAR operations required for such catastrophic incidents. The pillars of how CISAR is managed and operated will remain the same, but the scope and complexity of the SAR operations may be significantly more challenging. Having redundant systems and a plan to

operate during a cyber incident ensures that communities can be more resilient in the face of these increasing threats.

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**Part 4 | Chemical, Biological, Radiological,
Nuclear, and High-Yield Explosive (CBRNE)
Incidents**

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Section 4-1: CBRNE Overview

CISAR operations may be conducted within the context and environment associated with a CBRNE incident, which may have been caused either by accident or act of terrorism. In such situations, CISAR responders should:

- Be concerned with personnel safety;
- Understand and be aware of impacts on SAR capabilities;
- Be aware of the impact these types of situations have on government and public behavior; and
- Understand and adhere to instructions from experts and authorities in charge.

CBRNE incidents represent challenges for the traditional ICS structure. Events that are not site-specific, geographically dispersed, or evolve over longer periods of time will require extraordinary coordination between Federal, State, local, tribal, private-sector, and nongovernmental organizations. An area command may be established to oversee the management of such incidents.

Specialized CBRNE Response Teams

Relevant emergency plans should identify available specialized teams that can be used to assist with CISAR operations within a CBRNE environment.

Many Federal, State, Tribal, Territorial/Insular Area, and local agencies and organizations have such teams; however, their immediate availability varies.

A primary resource available to assist in a CBRNE incident is the National Guard (NG), which can mobilize multiple types of special response teams:

- Weapons of Mass Destruction (WMD) – Civil Support Teams (CSTs);
- CBRN Enhanced Response Force Packages (CERFP);
- Homeland Response Forces (HRFs);
- DoD CBRN Response Force (DCRF); and
- Command and Control CBRN Response Element (C2CRE (A/B)).

Weapons of Mass Destruction – Civil Support Team (WMD-CST)

There are 57 WMD-CSTs assigned to the NG. This is a high priority, rapid response unit made up of 22 fulltime Title 32 “Active Guard Reserve” (AGR) National Guard personnel (uniformed members of the National Guard who serve on full-time active duty supporting National Guard operations). The unit is jointly manned by both Army and Air National Guard personnel. These units were established by Congress, certified by SECDEF to Congress, and are assigned to every State, Territory, and the District of Columbia with two WMD-CSTs in California, Florida, and New York.

By statute, each WMD-CST operates under the control of the Governor and can be employed as a State asset without DoD authorization. Under presidential mobilization the WMD-CST could be employed as part of a Title 10 response force package.

Each WMD-CST is prepared to conduct an immediate response deployment within 1.5 hours of notification for the Advanced Echelon (ADVON) and 3 hours for the main body. WMD-CSTs will:

- Usually be the first DoD responders to support civil authorities at any domestic CBRN incident site or event;
- May provide a response capability for an intentional or unintentional release of nuclear, biological, radiological, toxic, or poisonous chemical materials; and
- Provide a response capability to man- made or natural disasters in the U.S. that result in or could result in catastrophic loss of life or property.

The WMD-CST mission is to identify CBRN agents/substances, assess current or projected consequences, advise on response measures, and assist with appropriate requests for state support to facilitate additional resources.

On site, the WMD-CST is prepared to conduct and sustain continuous operations for 72 hours.

CBRN Enhanced Response Force Package (CERFP)

There are 17, approximately 208-person CERFPs currently authorized by Congress. CERFP units are sourced by the NG and are a DoD capability under the control of the State Governors unless federalized.

CERFPs are a key element of the DoD’s overall program to provide military support to civil authorities in the event of an intentional or accidental CBRNE incident in the U.S.

Within the national response continuum, CERFP teams are required to be ready for deployment in 6 hours. CERFPs are provided additional special training and equipment to plan and conduct personnel casualty search and extraction; emergency medical triage, treatment, and patient stabilization; and mass casualty decontamination.

Homeland Response Force (HRF)

Ten HRF teams have been established and incorporate a CERFP as the core CBRN response element. There is one 566-person HRF within each FEMA Region.

HRFs are a DoD capability under C2 of State governors unless federalized.

The HRF includes a security capability which will be tasked by the C2 HRF element and will respond directly to State tasking in support of local incident command and possibly other State security missions.

The HRF construct will also include a C2 element operating as directed by the State Joint Force Headquarters (JFHQ) and/or Joint Task Force – State (JTF-State).

DoD CBRN Response Force (DCRF)

The 5,200 person DCRF is the Title 10 Active component, Title 10 Reserve component, and NG element designated as the lead DoD Federal response to a CBRN event within the USNORTHCOM or USINDOPACOM AOR. It responds to SECDEF direction through CDRUSNORTHCOM.

The headquarters element of the DCRF is Joint Task Force Civil Support (JTF-CS), which is assigned to USNORTHCOM under the operational control of the USNORTHCOM Joint Forces Land Component Commander (JFLCC).

There is only one DCRF. It includes additional capability besides multiple Immediate Response Forces (IRFs) to provide robust C2, aviation, level II and III medical care, transportation, and engineering units in a responsive capability in order to enhance life-saving operations early in any CBRNE catastrophic event. In a similar manner, the Title 10 Task Force operations of the DCRF will operate under the command-and-control of the Title 10 Joint Task Force commander managing work that has been requested in support of the Federal response. The C2 element must also be prepared to direct and support additional CERFPs, WMD-CSTs, or other military units.

Command and Control CBRN Response Element (C2CRE) A/B

C2CRE A/B are designated to respond to subsequent/additional CBRN incidents, augment the DCRF, or respond to other simultaneous events. C2CREs respond to SECDEF direction through the CDR, USNORTHCOM.

The headquarters element of a C2CRE is a Contingency Command Post (CCP) headquarters assigned to U.S. Army North (USARNORTH). This CCP may be CCP 1, CCP 2, or another JTF, if so directed.

A C2CRE can provide minimal immediate life-saving capability by the assigned Technical Support Force (TSF) IRF and as the core capability for additional contingency Request for Forces (RFF) units, also known as Follow-on Forces.

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Section 4-2: CBRNE Chemical Incidents

Chemical agents are poisonous vapors, aerosols, liquids, and solids that have toxic effects on people, animals, or plants.

Chemical agents can be:

- Released by industrial or transportation accident;
- Released by bombs or sprayed from aircraft, boats, and vehicles;
- Used as a liquid to create a hazard to people and the environment; or
- Odorless, tasteless, and have an immediate (within a few seconds or minutes) or a delayed (2 to 48 hours) effect.

While potentially lethal, chemical agents are difficult to deliver in lethal concentrations. Outdoors, the rate that some chemical agents dissipate varies depending upon type of agent, whether it is a liquid or vapor and what types of surfaces it deposits upon. For example, grass, sand, and soil surfaces may absorb a chemical agent in times ranging from a few minutes to approximately four hours. Painted surfaces also sorb liquid chemical agents, but over a longer timeframe. This results in a liquid hazard which varies from up to one hour on most painted surfaces to as long as six hours for some paints. Impervious surfaces, such as glass or unpainted metal, retain a liquid hazard for longer periods unless the agent is removed. Chemical agents also are difficult to produce, transport, and deliver.

Indicators of Chemical Agents

Table 4-1: Possible Indicators of Chemical Agents identifies possible indicators of chemical agents.

Table 4-1: Possible Indicators of Chemical Agents

Possible Indicators of Chemical Agents
Unexplained dead or dying animals or lack of insects.
Unexplained casualties: multiple victims, serious illness, nausea, disorientation, breathing difficulty, convulsions, or other chemical-indicative casualty patterns.
Unusual liquid, spray or vapor, droplets, oily film; unexplained odor, low flying clouds, or fog unrelated to weather.
Suspicious devices or packages, unusual metal debris; abandoned spray devices or unexplained munitions.

Chemical Incident Symptoms

A chemical attack could come without warning. Onset of symptoms could become present in seconds, hours, or even days.

Signs of a chemical release include people having difficulty breathing, experiencing eye irritation, losing coordination, becoming nauseated, or having a burning sensation in the nose, throat, and lungs. This may also include burning, itching, red skin, prominent tearing/burning/redness of eyes, eyelid edema, shortness of breath, nausea and vomiting, cough, chest tightness, or sore throat.

Chemical Incident Decontamination

Decontamination is required within minutes of exposure to minimize health consequences, or as soon as possible. Do not leave the safety of a shelter to go outdoors to help others until authorities announce it is safe to do so.

Chemical exposure requires immediate professional medical attention. If medical help is not immediately available, decontaminate yourself and assist in decontaminating others by using the following procedures in Figure 4-1: Chemical Incident Decontamination.

Clothing Disposal

After washing yourself, place your clothing inside a plastic bag. Avoid touching contaminated areas of the clothing. If you cannot avoid touching contaminated areas, or you are not sure where the contaminated areas are, wear rubber gloves or put the clothing in the bag using tongs, tool handles, sticks, or similar objects. Anything that touches the contaminated clothing should also be placed in the bag. If you wear contacts, put them in the plastic bag as well.

Seal the bag, and then seal the bag inside another plastic bag. Disposing of your clothing in this way will help protect you and other people from any chemicals that might be on your clothes.

CISAR Response to a Chemical Incident

The first concern must be to recognize a chemical event and protect the CISAR responders. Unless CISAR responders recognize the danger, they will very possibly become casualties in a chemical environment. It may not be possible to determine from the symptoms experienced by affected personnel which chemical agent has been used. Chemical agents may be combined and therefore recognition of agents involved becomes more difficult.

When there is reason to believe that chemical agents may be present, the following should be considered:

- Before approaching the scene, don PPE specifically designed for use in hazardous chemical environments.
- Approach scene cautiously, from upwind. Resist the urge to rush in and assist victims. Others cannot be helped until the situation has been fully assessed;
- Secure the scene. Without entering the hazard area, isolate the likely or suspected area and assure the safety of people and the environment. Keep people away from the scene and outside the safety perimeter;
- Identify the hazards (evaluate all available information);
- Assess the situation, considering the following:
 - Is there a fire, spill, or leak?
 - What are the weather conditions?
 - What is the terrain like?
 - Who/what is at risk: people, property, or the environment?
 - What actions should be taken? Is an evacuation or shelter in place necessary?
 - What resources (human and equipment) are required and are readily available?
 - What can be done immediately?
- Obtain help (Notify local EMS/911; notify responsible agencies for assistance from qualified personnel);

Chemical Incident Decontamination Procedures

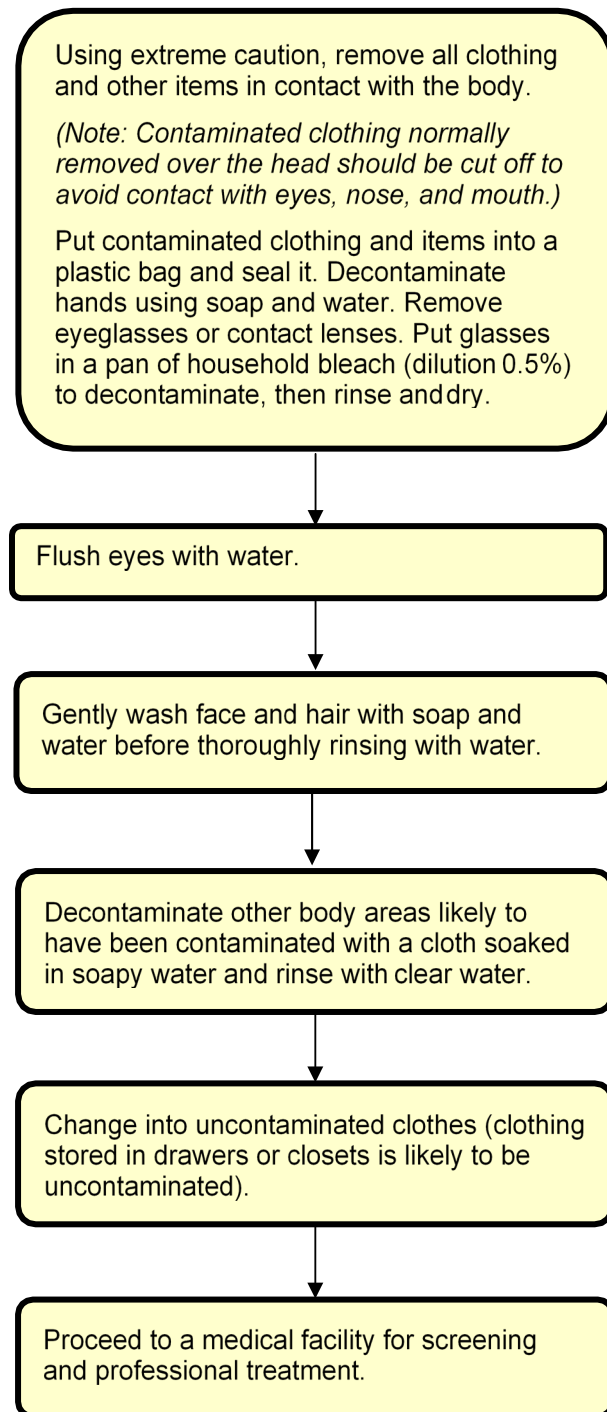


Figure 4-1: Chemical Incident Decontamination

- Decide on site entry (Any efforts made to rescue persons or to protect property or the environment must be weighed against the possibility that you could become endangered);
- Alert fellow responders to the scene's safest entry route;
- Establish a command post and lines of communication;
- Rescue casualties where possible and evacuate if necessary;
- Maintain control of the site;
- Continually reassess the situation and modify the response accordingly;
- The first duty is to consider the safety of the people in the immediate area, including your own;
- Do not walk into or touch spilled material;
- Avoid inhalation of fumes, smoke, and vapors, even if no Weapons of Mass Destruction are known to be involved; and
- Do not assume the gases or vapors are harmless because of a lack of smell – odorless gases or vapors may be harmful.

Contacts

- **911/dispatch** to alert police/bomb squad and fire/HAZMAT;
- **CHEMTREC, a service of the Chemical Manufacturers Association** – call CHEMTREC 24x7 at 800-424-9300; 703-527-3997 (For call originating elsewhere; collect calls are accepted);
- **Chem-Tel, Inc**, an emergency response communication service – 24x7 at 800-255-3924 (toll free in the U.S.); 813-979-0626 (for calls originating elsewhere; collect calls are accepted),
- **National Response Center (NRC, operated by the U.S. Coast Guard)** – receives reports required when dangerous goods and hazardous substances are spilled. After receiving notification of an incident, the NRC will immediately notify the appropriate Federal On Scene Coordinator and concerned Federal agencies. Call NRC 24x7 at 800-424-8802;
- **Military shipments:** for assistance in incidents involving materials being shipped by, for, or to DoD, call one of the following numbers 24x7:
 - **U.S. Army Operations Center**, for incidents involving explosives and ammunition. 703-697-0218 (call collect); or
 - **Defense Logistics Agency**, for incidents involving dangerous goods other than explosives and ammunition. 800-851-8061

Section 4-3: CBRNE Biological Incidents

A bioterrorism attack is the deliberate release of viruses, bacteria, or other biological agents used to cause illness or death in people, animals, or plants. These agents are typically found in nature, but it is possible that they could be changed to increase their ability to cause disease, make them resistant to current medicines, or to increase their ability to be spread into the environment. Biological agents can be spread through the air, through water, or in food. Terrorists may use biological agents because they can be extremely difficult to detect and do not cause illness for several hours to several days. Some bioterrorism agents, like the smallpox virus, can be spread from person to person and some, like anthrax, cannot.

The three basic groups of biological agents that would likely be used as weapons are bacteria, viruses, and toxins. Most biological agents are difficult to grow and maintain.

Many break down quickly when exposed to sunlight and other environmental factors, while others, such as anthrax spores, are long lived.

Bioterrorism agents can be separated into three categories, depending on how easily they can be spread and the severity of illness or death they cause (Table 4-2: Bioterrorism Agent Categories). Category A agents are considered the highest risk and Category C agents are those that are considered emerging threats for disease.

Table 4-2: Bioterrorism Agent Categories

Bioterrorism Agent Categories¹⁷	
Category A	<p>Include organisms or toxins that pose the highest risk to the public and national security because:</p> <ul style="list-style-type: none"> • They can be easily spread or transmitted from person to person. • They result in high death rates and have the potential for major public health impact. • They might cause public panic and social disruption. • They require special action for public health preparedness.
Category B	<p>These agents are the second highest priority because:</p> <ul style="list-style-type: none"> • They are moderately easy to spread. • They result in moderate illness rates and low death rates. • They require specific enhancements of CDC's laboratory capacity and enhanced disease monitoring.
Category C	<p>These third highest priority agents include emerging pathogens that could be engineered for mass spread in the future because:</p> <ul style="list-style-type: none"> • They are easily available. • They are easily produced and spread. <p>They have potential for high morbidity and mortality rates and major health impact.</p>

Biological weapons in the possession of hostile nations or terrorists pose unique and grave threats to the safety and security of the United States and our allies.

Biological weapons attacks:

- Can cause catastrophic harm by inflicting widespread injury and massive casualties;
- Cause severe economic disruption;
- Can mimic naturally occurring disease, potentially delaying recognition of an attack and creating uncertainty about whether one has even occurred;
- Can be mounted either inside or outside the United States;
- Because some biological weapons agents are contagious, the effects of an initial attack could spread over a wide geographical region.

¹⁷ CDC Emergency Risk Communication Branch (ERCB), Division of Emergency Operations (DEO), Office of Public Health Preparedness and Response (OPHPR), *Bioterrorism Overview* (Atlanta: CDC, 12 Feb 2007); on the Internet at <http://www.bt.cdc.gov/bioterrorism/overview.asp>

Disease outbreaks, whether natural or deliberate, respect no geographic or political borders. Once a biological weapons attack is detected, the speed and coordination of the Federal, State, Tribal, Territorial/Insular Area, and local response will be critical in mitigating the attack's lethal, medical, psychological, and economic consequences. Responses to biological weapons attacks depend on pre- attack planning and preparedness, capabilities to treat casualties, risk communications, physical control measures, medical countermeasures, and decontamination capabilities.

Following a biological weapons attack, all necessary means must be rapidly brought to bear to prevent loss of life, illness, psychological trauma, and to contain the spread of potentially contagious diseases.

Provision of timely preventive treatments such as antibiotics or vaccines saves lives, protects scarce medical capabilities, preserves social order, and is cost-effective.

Delivery Methods

Disease transmission may occur from:

- Direct contact with an infected individual or animal;
- An environmental reservoir (includes contaminated surface or atmospheric dispersion);
- An insect vector; or
- Contaminated food and water.

Indirect contact transmission may also occur where contaminated inanimate objects (fomites) serve as the vehicle for transmission of the agent.

Figure 4-3: Factors Influencing Dispersion of Radiological Effects provides specific biological agent delivery methods:

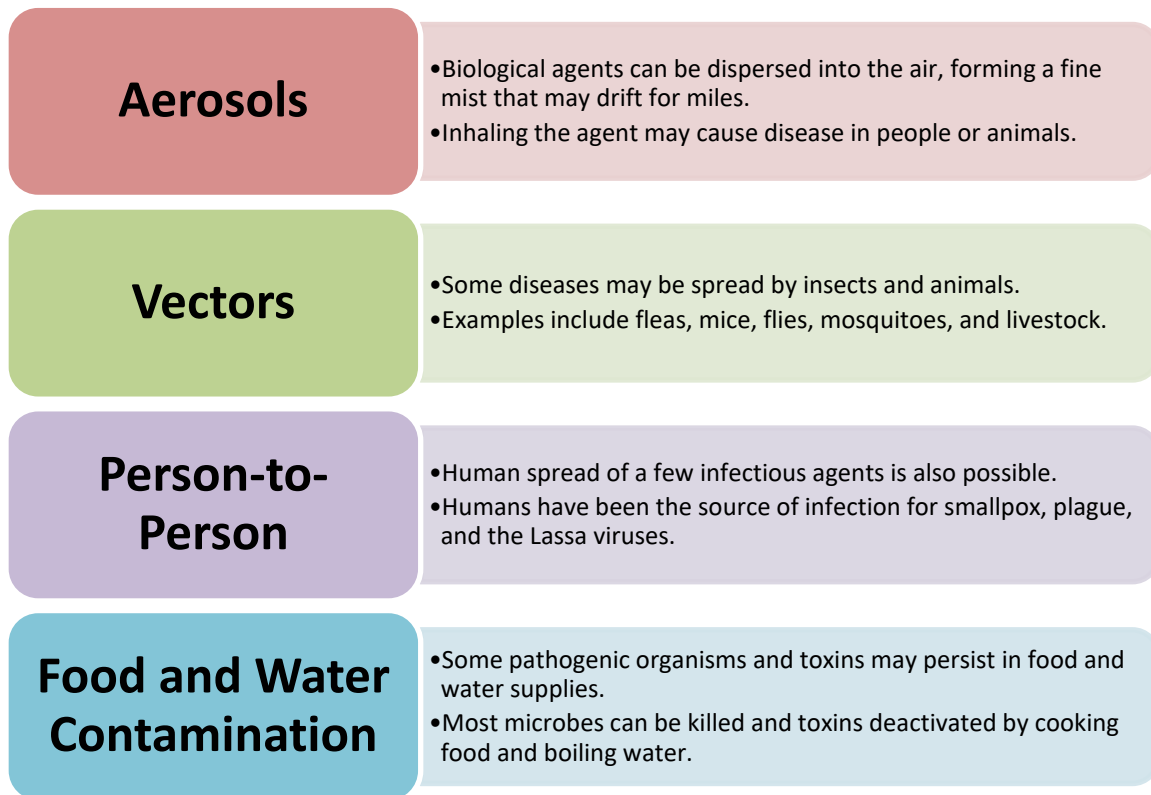


Figure 4-2: Biological Agent Delivery Methods

Indicators of Biological Agents

Detection of a bioterrorism act against the civilian population may occur in several different ways and involve several different modalities:

An attack may be surreptitious, in which case the first evidence of dissemination of an agent may be the presentation of disease in humans or animals. This could manifest either in clinical case reports to domestic or international public health authorities or in unusual patterns of symptoms or encounters within domestic or international health surveillance systems.

A terrorist-induced infectious disease outbreak initially may be indistinguishable from a naturally occurring outbreak; moreover, depending upon the agent and associated symptoms, several days could pass before public health and medical authorities even suspect that terrorism may be the cause. In such a case, criminal intent may not be apparent until sometime after illnesses are recognized.

Table 4-3: Possible Indicators of Biological Agents

Possible Indicators of Biological Agents
Unexplained dead or dying animals (sick or dying animals, people, or fish).
Unexplained casualties (unusual illness for region/area; definite pattern inconsistent with natural disease).
Unusual swarms of insects.
Suspicious bombing incident with little blast or fire damage.
Abandoned spray or dispersion devices.
Laboratory containers.
Biohazard cultures or culture media labels.
Casualty distribution aligned with wind direction.
Suspicious powder delivered in envelopes through the postal system.

What to Do

In some situations (e.g., Anthrax letters sent in 2001), government authorities may be alerted to potential exposure. If this is the case, pay close attention to all official warnings and instructions on how to proceed. The delivery of medical services for a biological event may be handled differently to respond to increased demand. The basic public health procedures and medical protocols for handling exposure to biological agents are the same as for any infectious disease. It is important to pay attention to official instructions via radio, television, and emergency alert systems.

CISAR Responder Concerns

The most practical method of initiating widespread infection using biological agents is through aerosolization, where fine particles are sprayed over or upwind of a target where the particles may be inhaled.

An aerosol may be effective for some time after delivery, since it will be deposited on clothing, equipment, and soil. When the clothing is used later, or dust is stirred up, responding personnel may be subject to “secondary” contamination.

CISAR responders need to be protected from the hazard prior to rescuing victims. Planning for the response to bioterrorist acts must include provisioning CISAR responders with the appropriate PPE because biological agents may be able to use portals of entry into the body other than the respiratory tract (NG CBRNE responder protections will include an active immunization

program to support victim rescue and management operations).

Individuals may be infected by ingestion of contaminated food and water, or even by direct contact with the skin or mucous membranes through abraded or broken skin. Therefore, it is critical for CISAR responders to use appropriate protective clothing or commercially available Level C clothing and to protect the respiratory tract by using a mask with biological high-efficiency particulate air (HEPA) filters.

Exposure to biological agents, as noted above, may not be immediately apparent. Casualties may occur minutes, hours, days, or weeks after an exposure has occurred.

The time required before signs and symptoms are observed is dependent on the agent used. Symptoms may include fever, chills, headaches, muscular pain, fatigue, non-productive cough, profuse sweating, chills chest/muscle/joint pain, cramping, abdominal pain, and watery diarrhea (may be somewhat bloody). Even though the above symptoms may become evident, often the first confirmation will come from blood tests or other diagnostic means used by medical personnel.

Additional information can be found in the sources for this guidance:

- Department of Homeland Security, *Homeland Security Presidential Directive 10: Biodefense for the 21st Century* (April 28, 2004)
- Federal Emergency Management Agency, *Biological Incident Annex to the National Response Framework* (August, 2008); https://www.fema.gov/pdf/emergency/nrf/nrf_BiologicalIncidentAnnex.pdf
- Federal Emergency Management Agency, *Guidance on Biological Threats*; <https://www.ready.gov>
- Centers for Disease Control and Prevention, *Emergency Preparedness for Bioterrorism*; <https://emergency.cdc.gov/bioterrorism/>

Section 4-4: CBRNE Radiological Incidents

A radiological incident is defined as an event or series of events, deliberate or accidental, leading to the release, or potential release, into the environment of radioactive material in sufficient quantity to warrant consideration of protective actions. Use of a Radiological Dispersal Device (RDD) or Improvised Nuclear Device (IND) is an act of terror that results in a radiological incident.

Radiological Dispersion Device (RDD)

An RDD is any device that causes the purposeful dissemination of radioactive material, across an area with the intent to cause harm, without a nuclear detonation.

RDDs pose a threat to public health and safety through the malicious spread of radioactive material by some means of dispersion. An RDD combines a conventional explosive device – such as a bomb – with radioactive material. The explosion adds an immediate threat to human life and property. Other means of dispersal, both passive and active, may be employed.

There are a wide range of possible consequences that may result from an RDD, depending on the type and size of the device and how dispersal is achieved. The consequences of an RDD may range from a small, localized area, such as a single building or city block, to large areas, conceivably several square miles. However, most experts agree that the likelihood of impacting a large area is low. In most plausible scenarios, the radioactive material would not result in acutely harmful radiation doses.

Hazards from fire, smoke, shock (physical, electrical, or thermal), shrapnel (from an explosion), hazardous materials, and other chemical or biological agents may also be present.

Terrorist use of an RDD, often called a “dirty nuke” or “dirty bomb,” is considered far more likely than use of a nuclear explosive device. It is designed to scatter dangerous and sub-lethal amounts of radioactive material over a general area.

The primary purpose of an RDD is to cause psychological fear and economic disruption. Some devices could cause fatalities from exposure to radioactive materials.

Depending on the speed at which the area of the RDD detonation was evacuated or how successful people were at sheltering-in-place, the number of deaths and injuries from an RDD might not be substantially greater than from a conventional bomb explosion. But the public perception and fear may be considerable.

The size of the affected area and level of destruction caused by an RDD would depend on the sophistication and size of the conventional bomb, type of radioactive material used, quality and

quantity of radioactive material, and local meteorological conditions (primarily wind and precipitation). The area affected could be placed off-limits to the public for several months during cleanup efforts.

Improvised Nuclear Device (IND)

An IND is an illicit nuclear weapon bought, stolen, or otherwise originating from a nuclear State, or a weapon fabricated by a terrorist group from illegally obtained fissile nuclear weapons material that produces a nuclear explosion. The nuclear yield achieved by an IND produces extreme heat, powerful shockwaves, and prompt radiation that would be acutely lethal for a significant distance. It also produces radioactive fallout, which may spread and deposit over very large areas. If a nuclear yield is not achieved, the result would likely resemble an RDD in which fissile weapons material was utilized.

Hazards of Nuclear Devices

The extent, nature, and arrival time of these hazards are difficult to predict. The geographical dispersion of hazard effects will be influenced by the factors in Figure 4-3: Factors Influencing Dispersion of Radiological Effects.

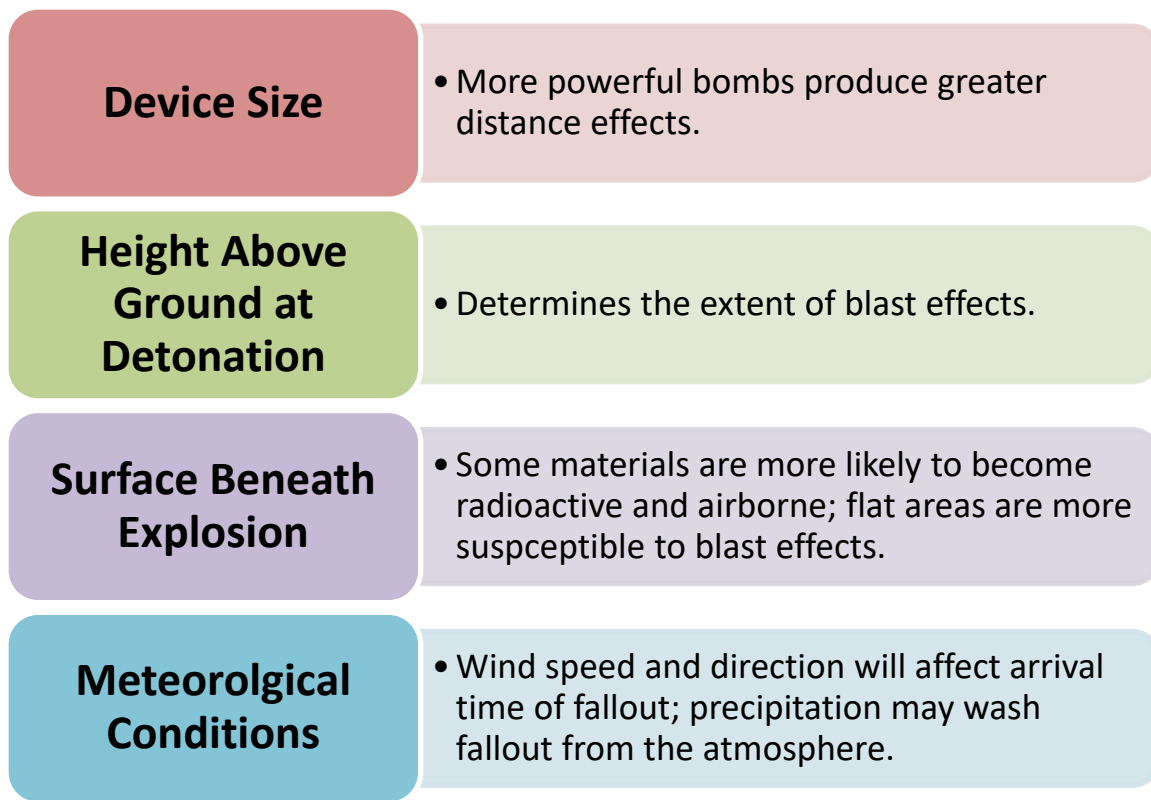


Figure 4-3: Factors Influencing Dispersion of Radiological Effects

Phases of Response

Typically, the response to an RDD or IND incident can be divided into three-time phases (early, intermediate, and late) that are generally accepted as being common to all radiological incidents. Although the phases cannot be represented by precise time periods, and may overlap, they provide a useful framework for the considerations involved in emergency response planning.

The phases are provided in Table 4-4: RDD/IND - Phases of Response.

Table 4-4: RDD/IND - Phases of Response

RDD/IND - Phases of Response	
Early Phase (Emergency Phase)	<p>Period at the beginning of the incident when immediate decisions for effective protective actions are required, and when actual field measurement data generally are not available. Exposure to the radioactive plume, short-term exposure to deposited radioactive materials, and inhalation of radioactive material are generally taken into account when considering protective actions for the early phase. The response during the early phase includes initial emergency response actions to protect public health and welfare in the short term, considering a time period for protective actions of hours to a few days. Priority should be given to lifesaving and first-aid actions. In general, early phase protective actions should be taken very quickly, and the protective action decisions can be modified later as more information becomes available.</p> <p><i>RDD.</i> If an explosive RDD is deployed without warning, however, there may be no time to take protective actions to significantly reduce plume exposure. Also, in the event of a covert dispersal, discovery or detection may not occur for days or weeks, allowing contamination to be dispersed broadly by foot, vehicular traffic, wind, rain, or other forces.</p> <p><i>IND.</i> If an IND explodes, there may only be time to make early phase protective action recommendations (e.g., evacuation, or shelter-in-place) many miles from the explosion to protect areas against exposure to fallout. Areas close to the explosion will be devastated, and communications and access will be extremely limited. Assistance will likely not be forthcoming or even possible for some hours. Self-guided protective actions are likely to be the best recourse for most survivors (e.g., evacuation perpendicular to the plume movement if it can be achieved quickly or sheltering in a basement or large building for a day or more after the incident). Due to the lack of communication and access, outside guidance and assistance to these areas can be expected to be delayed. Therefore, response planning and public outreach programs are critical measures to meet IND preparedness objectives. During the Early Phase of operations, CISAR responders will conduct the most lifesaving operations.</p>

<p>Intermediate Phase</p>	<p>The intermediate phase of the response; may follow the early phase response within as little as a few hours. Usually assumed to begin after the incident source and releases have been brought under control and protective action decisions can be made based on measurements of exposure and radioactive materials that have been deposited as a result of the incident. Activities in this phase typically overlap with early and late phase activities, and may continue for weeks to many months, until protective actions can be terminated. Decisions must be made on the initial actions needed to recover from the incident, reopen critical infrastructure, and return to a state of relatively normal activity. Local officials must weigh public health and welfare concerns, potential economic effects, and many other factors when making decisions.</p>
<p>Late Phase</p>	<p>The late phase is the period when recovery and cleanup actions designed to reduce radiation levels in the environment to acceptable levels are commenced. This phase ends when all the remediation actions have been completed.</p>

Radioactive Fallout

Even if individuals are not close enough to the nuclear blast to be affected by the direct impacts, they may be affected by radioactive fallout. Any nuclear blast results in some fallout. Blasts that occur near the earth’s surface create much greater amounts of fallout than blasts that occur at higher altitudes. This is because the tremendous heat produced from a nuclear blast causes an up-draft of air that forms the familiar mushroom cloud. When a blast occurs near the earth’s surface, millions of vaporized dirt particles also are drawn into the cloud. As the heat diminishes, radioactive materials that have vaporized condense on the particles and fall back to Earth. The phenomenon is called radioactive fallout.

This fallout material decays over a long period of time and is the main source of residual nuclear radiation.

Fallout from a nuclear explosion may be carried by wind currents for hundreds of miles if the right conditions exist. Effects from even a small portable device exploded at ground level can be potentially deadly. Nuclear radiation cannot be seen, smelled, or otherwise detected by normal senses.

Radiation can only be detected by radiation monitoring devices. This makes radiological emergencies different from other types of emergencies, such as floods or hurricanes.

Monitoring can project the fallout arrival times, which will be announced through official warning channels. However, any increase in surface build-up of gritty dust and dirt should be a warning for taking protective measures.

Emergency Worker Guidelines

The response during the early phase includes initial emergency response actions to protect public health and welfare in the short term. Priority should be given to lifesaving, first-aid, and include actions such as suppression of fires that could result in further loss of life.

For the purposes of this Guidance, “emergency worker” is defined as any worker who performs an early or intermediate phase work action. Table 4-5: Emergency Worker Guidelines in the Early Phase on the next page shows the emergency worker guidelines for early phase emergency response actions.

Table 4-5: Emergency Worker Guidelines in the Early Phase

Emergency Worker Guidelines in the Early Phase¹⁸		
Total effective dose equivalent (TEDE)¹⁹ guideline	Activity	Condition
5 rem²⁰ (0.05 Sv)	All occupational exposures	All reasonably achievable actions have been taken to minimize dose.
10 rem (0.1 Sv)	Protecting critical infrastructure necessary for public welfare (e.g., a power plant).	Exceeding 5 rem (0.05 Sv) unavoidable and all appropriate actions taken to reduce dose. Monitoring available to project or measure dose.
25 rem (0.25 Sv)²¹	Lifesaving or protection for large populations.	Exceeding 5 rem (0.05 Sv) unavoidable and all appropriate actions taken to reduce dose. Monitoring available to project or measure
>25 rem (0.25 Sv)	Lifesaving or protection for large populations. It is highly unlikely that doses would reach this level in an RDD	All conditions above and only for people fully aware of the risks involved.

¹⁸ In the intermediate and late phases, standard worker protections, including the annual 5 rem occupational dose limit would normally apply.

¹⁹ The projected sum of the effective dose equivalent from external radiation exposure and committed effective dose equivalent from internal radiation exposure.

²⁰ In the U.S., radiation doses are measured in units called rem. Under the metric system, dose is measured in units called sieverts (Sv). One Sv is equal to 100 rem.

²¹ EPA’s 1997 Protective Action Guide (PAG) Manual states that “Response actions that could cause exposures in excess of the 25 rem (0.25 Sv) emergency worker guideline should only be undertaken with an understanding of the potential acute effects of radiation to the exposed responder and only when the benefits of the action clearly exceed the associated risks.” Similarly, the NCRP and ICRP raise the possibility that emergency responders might receive an equivalent dose that approaches or exceeds 50 rem (0.5 Sv) to a large portion of the body in a short time (Limitation of Exposure to Ionizing Radiation, National Council on Radiation Protection and Measures, NCRP Report 116 (1993a). If lifesaving emergency responder doses approach or exceed 50 rem (0.5 Sv) emergency responders must be made fully aware of both the acute and the chronic (cancer) risks of such exposure.

	incident; however, worker doses higher than 25 rem (0.25 Sv) are conceivable in a catastrophic incident such as an IND incident.	
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The emergency worker guidelines were developed for a wide range of possible radiological scenarios, from a small RDD that may impact a single building to an IND that could potentially impact a large geographic region. Therefore, the 5, 10, and 25 rem guidelines (Table 2 above) should not be viewed as inflexible limits applicable to the range of early phase emergency actions.

Because of the range of impacts and case-specific information needed, ICs should to establish a “turn-back” dose level for responders.

With proper preparedness measures (training, personnel protective equipment, etc.) many radiological emergencies, even lifesaving operations, may be manageable within the 5 rem (0.05 Sv) annual occupational limit.

Moreover, ICs should make every effort to employ the “as low as reasonably achievable” (ALARA) principle after an incident.

Still, in some incidents medically significant doses above the annual occupational 5 rem (0.05 Sv) dose limit may be unavoidable. For instance, in the case of a catastrophic incident, such as an IND, Incident Commanders may need to consider raising the lifesaving and valuable property (i.e., necessary for public welfare) emergency worker guidelines to prevent further loss of life and prevent the spread of massive destruction. Ensuring that emergency workers have full knowledge of the associated risks prior to initiating emergency action and medical evaluation of emergency workers after such exposure is essential.

Controlling Occupational Exposures and Doses to Emergency Workers

Appropriate measures should be taken to minimize radiation dose to emergency workers responding to an RDD or IND incident.

Emergency management officials responsible for an incident should take steps to keep all doses to emergency workers ALARA²². Protocols for maintaining ALARA should include the following health physics and industrial hygiene practices:

²² ALARA: as low as reasonably achievable. ALARA is a process to control or manage radiation exposure to individuals and releases of radioactive material to the environment so that doses are as low as social, technical, economic, practical, and public welfare considerations permit.

- Minimize the time spent in the contaminated area (e.g., rotation of emergency responders);
- Maintain distance from sources of radiation;
- Shield radiation source;
- Use hazard controls that are applicable to the work performed;
- Properly select and use respirators and other PPE to minimize exposure to internally deposited radioactive materials (e.g., alpha and beta emitters); and
- Use prophylactic medications, when appropriate, that either blocks the uptake or reduces the retention time of radioactive material to the body.

To minimize the risks from exposure to ionizing radiation, all emergency responders should be trained and instructed to follow emergency response plans and protocols and be advised on how to keep exposures ALARA.

Understanding Radiation Risks

If there is the possibility that emergency workers would receive a radiation dose higher than the 5 rem (0.05 Sv) guideline, emergency workers should be trained to understand the risk associated with such doses. This includes a thorough explanation of the latent risks associated with receiving doses greater than 5 rem (0.05 Sv), and acute risks at higher doses.

Emergency workers should be fully aware of both the projected acute and chronic risks (cancer) they may incur in an emergency response action. Furthermore, emergency workers cannot be forced to perform a rescue action involving radiation doses above regulatory limits, and they should be given reasonable assurance that normal controls cannot be utilized to reduce doses to less than 5 rem (0.05 Sv). After the event, it is essential that emergency workers be provided with medical follow up.

The estimated risk of fatal cancer for healthy workers who receive a dose of 10 rem (0.10 Sv) is about 0.46 percent over the worker's lifetime (i.e., .405 fatal cancers per 1000 people, or 0.4-0.5 percent). The risk scales linearly. For workers who receive a dose of 25 rem (0.25 Sv), the risk is about 1.1 percent. The risk is believed to be greater for those who are younger at the time of exposure. For example, for 20–30-year-olds the estimated risk of fatal cancer at 25 rem (1.75 percent) is about twice as large as the risk for 40–50-year-olds (0.8 percent).

Above 50 rem (0.5 Sv) acute effects are possible. Where lifesaving actions may result in doses that approach or exceed 50 rem (0.50 Sv), such as in an IND incident, emergency workers need to have a full understanding of the potential acute effects of the expected radiation exposure, in addition to the risk of chronic effects. The decision to take these lifesaving actions must be based on the estimation that the human health benefits of the action exceed the safety and health risks to the emergency workers.

Symptoms of Radiation Exposure

The IC must strive to limit the radiation exposure of responders when conducting CISAR operations. From extensive studies of persons who suffered radiation exposure, the following information was obtained:

- The more radiation dose a person receives, the greater the chance of developing cancer;
- It is the chance of cancer occurring, not the severity of cancer, that increases as the radiation dose increases;
- Radiation induced cancers do not appear until years after the radiation dose is received; and
- The risk from radiation exposure will vary among individuals.

Acute Exposure

Acute exposure is exposure to a large, single dose of radiation, or a series of moderate doses received during a short period of time. Large acute doses can result from accidental or emergency exposures or from specific medical procedures (radiation therapy).

In most cases, a large acute exposure to radiation causes both immediate and delayed effects. Delayed biological effects can include cataracts, temporary or permanent sterility, cancer, and harmful genetic effects. For humans and other mammals, acute exposure to the whole body, if large enough, can cause rapid development of radiation sickness, evidenced by gastrointestinal disorders, bacterial infections, hemorrhaging, anemia, loss of body fluids, and electrolyte imbalance. An extremely high dose of acute radiation exposure can result in death within a few hours, days, or weeks.

Chronic Exposure

Chronic exposure is continuous or intermittent exposure to low doses of radiation over a long period of time. With chronic exposure, there is a delay between the exposure and the observed health effect. These effects can include cancer and other health outcomes such as benign tumors, cataracts, and potentially harmful genetic effects.

Electromagnetic Pulse (EMP)

In addition to other effects, a nuclear weapon detonated in or above the earth's atmosphere can create an electromagnetic pulse (EMP), a high-density electrical field.

An EMP acts like a stroke of lightning but is stronger, faster, and shorter.

What CISAR responders need to understand is that an EMP can seriously damage electronic

devices connected to power sources or antennas. This includes communication systems, computers, electrical appliances, and automobile or aircraft electronic systems. The damage could range from a minor interruption to actual burnout of components. Most electronic equipment within 1,000 miles of a high-altitude nuclear detonation could be affected. Battery-powered radios with short antennas generally would not be affected.

Although an EMP is unlikely to harm most people, it could harm those with pacemakers or other implanted electronic devices.

An EMP can severely limit a CISAR responder's ability to coordinate SAR operations, logistics, and the use of communications and medical support equipment. SAR operations should continue; however, they will be more difficult to perform.

Contacts

- **911/dispatch** to alert police/bomb squad and fire/HAZMAT;
- **Radiation Emergency Assistance Center/Training Site (REAC/TS)** – provides medical care for radiation emergencies. They are equipped to deploy physicians, nurses, EMT paramedics, health physicists, radiobiologists and coordinators with the equipment and supplies needed to treat radiation injury. For info on treatment or training, contact REAC/TS at 865-576- 3131 or EMERGENCY 24-hour assistance at 865-576-1005;
- **Domestic Nuclear Detection Office Joint Analysis Center (DNDO/JAC)** – DNDO improves the nation's capability to detect and report unauthorized attempts to import, possess, store, develop, or transport nuclear or radiological material. The JAC coordinates nuclear detection events and the technical support to Federal, state, and local authorities. The JAC can be contacted 24/7 at 877-363-6522;
- **National Response Center (NRC, operating by the U.S. Coast Guard)** – the NRC receives reports required when dangerous goods and hazardous substances are spilled. After receiving notification of an incident, the NRC will immediately notify the appropriate Federal On Scene Coordinator and concerned Federal agencies; call NRC (24 hours) 1-800-424-8802;
- **CDC Emergency Preparedness Branch** – 24-hour telephone number: 770-488- 7100; and
- **Military shipments:** for assistance in incidents involving materials being shipped by, for, or to DOD, call one of the following numbers (24 hours);
 - **U.S. Army Operations Center**, for incidents involving explosives and ammunition. 703-697-0218 (call collect); or
 - **Defense Logistics Agency**, for incidents involving dangerous goods other than explosives and ammunition. 800-851-8061.

Additional information can be found in the source for this guidance: Department of Homeland

Security, Planning Guidance for Protection and Recovery Following Radiological Dispersal Device (RDD) and Improvised Nuclear Device (IND) Incidents.

Section 4-5: Radiological Dispersal Device (RDD) Response Actions

CISAR Responder Protective Measures

As with any radiation, avoid or limit exposure. This is particularly true of inhaling radioactive dust that results from the explosion. If there is visual dust or other contaminants in the air, breathe through the cloth of your shirt or coat to limit your exposure. If you manage to avoid breathing radioactive dust, your proximity to the radioactive particles may still result in some radiation exposure.

In a known RDD environment, CISAR responders must protect themselves. The following guidance is provided for CISAR responders when conducting lifesaving operations after detonation of an RDD:

- Approach the release site with caution. Based on expert advice, position personnel, vehicles, and command post at a safe distance upwind and uphill of the site, if possible. Ensure your own physical safety. Look for fires, exposed high-voltage wires, sharp or falling objects, tripping hazards, or hazardous chemicals. Be alert for changing conditions.
- Wear a mask to reduce the dose from inhalation of radioactive dust. Ideally the mask should be a full-face mask with a HEPA filter, but even breathing through a handkerchief or cloth will help. There will be little danger from radioactive gases, so a self-contained breathing mask, while effective, is not necessary unless there are other gasses or toxins present.
- Dust will collect on clothing. After you leave the contaminated environment, remove and discard clothing in a designated area. If you fail to remove clothing, you will continue to receive radiation exposure and expose others. Wear loose fitting clothes covering as much of your body as possible. Any removable garment that will prevent the dust from coming into direct contact with your skin will suffice.
- Open wounds or abrasions must be protected from radioactive contamination.
- If running water or showers are available, full body rinsing with lukewarm water is advised. Even a fire hose may remove most contamination not already removed with the outer clothing.
- Do not eat, drink, or smoke while exposed to potentially radioactive dust or smoke. Due to the possibility of heat stress, drinking water may be necessary for people working in high temperatures with bulky protective clothing. If necessary to drink water, drink from a canteen or other closed container.

- If radiation monitoring instruments are available, wrap them in plastic bags to prevent their contamination. Use them to map the areas leading up to the highest dose rates. Enter the high dose rate areas only when necessary to save a life, make these entries as short as possible, and rotate the personnel who make these entries.

Protecting the Injured and Exposed after RDD Detonation

- Seriously injured people should be removed from the source of radiation, stabilized, and sent to hospitals first.
- After treatment of serious physical injuries, preventing the spread of the radioactive material or unnecessary exposure of other people is paramount. The following immediate response actions should be performed without waiting for any radiation measurements:
 - Establish an exclusion zone around the source. Mark the area with ropes or tapes. Reroute traffic.
 - Limit entry to rescue personnel only. Detain uninjured people who were near the event or who are inside the control zone until they can be checked for radioactive contamination, but do not delay treatment of injured people or transport to a hospital for this purpose.
 - Take action to limit or stop the release of more radioactive material, if possible, but delay cleanup attempts until radiation protection technicians are on the scene.
 - Tell nearby hospitals to expect the arrival of radioactively contaminated and injured people.
- Everyone near the scene should be checked for radioactive contamination. As soon as you can obtain radiation measuring equipment, establish a decontamination area for this purpose. Decontaminate people whose injuries are not life-threatening (broken arms, etc.) before sending them to hospitals. Do not send people without physical injuries to hospitals.
- Record keeping is as important for the long-term health of the victims as it is for the emergency responders. Record contact information for all exposed people so they can be given medical examinations later. The Department of Health and Human Services will request this information later.

Additional information can be found in the source for this guidance: Centers for Disease Control, *Casualty Management After a Deliberate Release of Radioactive Material Fact Sheet* (September 19, 2007).

Section 4-6: CBRNE Improvised Nuclear Device (IND) Response Actions

CISAR Responder Protective Measures

The following guidance is provided for CISAR responders when conducting lifesaving operations after detonation of an IND:

- Stay away from ground zero. Enter the surrounding area only to save lives. The radiation levels may be very high.
- Ensure your own physical safety. Look for fires, exposed high voltage wires, sharp or falling objects, tripping hazards, or hazardous chemicals. Be alert for changing conditions.
- Wear a mask to reduce the dose from inhalation of radioactive dust. Ideally the mask should be a full-face mask with a HEPA filter, but even breathing through a wet handkerchief or cloth will help. There will be little danger from radioactive gases, so a self-contained breathing mask, while effective, is not necessary.
- Dust will collect on your clothing. After you leave the contaminated environment, remove and discard clothing in a designated area. If you fail to remove clothing, you will continue to receive radiation exposure and expose others. Wear loose fitting clothes covering as much of your body as possible. Any removable garment that will prevent the dust from coming into direct contact with your skin will suffice.
- Open wounds or abrasions must be protected from radioactive contamination.
- If running water or showers are available, full body rinsing with lukewarm water is advised. Even a fire hose may remove most contamination not already removed with the outer clothing.
- Wash vehicles before permitting them to leave the scene, except for emergency vehicles performing life-saving functions.
- Do not eat, drink, or smoke while exposed to potentially radioactive dust or smoke. Due to the possibility of heat stress, drinking water may be necessary for people working in high temperatures with bulky protective clothing. If necessary to drink water, drink from a canteen or other closed container.
- Record contact information for all exposed workers so they can be given medical examinations later. The Department of Health and Human Services will request this information later.
- Wash thoroughly with lukewarm water as soon as possible after leaving the area, even if you decontaminated before leaving the scene.

Protecting the Injured and Exposed after IND Detonation

- Physical injuries are more serious than radioactive contamination. Deal with life-threatening conventional injuries first. When the patients are stable, deal with radioactive contamination. Patients who were treated and are now stable should be evacuated from radiation areas.
- Tell nearby hospitals to expect the arrival of radioactively contaminated and injured people.
- Victims will have radioactive dust on their clothing. If many people are covered with dust, it will not be feasible to conduct a careful survey of each person. Assume all the dust is radioactive. Set up a facility where each person can remove and discard clothing in a designated area, wash as thoroughly as possible, and don coveralls or wrap in blankets. This facility should be upwind and far enough from ground zero to prevent radiation levels from interfering with monitoring of patients.
- Many people without apparent injuries will leave the scene. Make public service announcements on radio and television advising these people to bag their clothes, place the clothes outdoors, and wash thoroughly. People experiencing nausea, vomiting, reddening of the skin, or unexplained lesions should be advised to report to a hospital immediately and request a checkup for Acute Radiation Syndrome (ARS).
- The form on the next page can be used to document personal information for future radiological monitoring.

Additional information as well as details on Acute Radiation Syndrome (ARS) can be found in the source for this guidance: Centers for Disease Control. Reference the CDC's *Casualty Management After Detonation of a Nuclear Weapon In an Urban Area Fact Sheet* (May 20, 2005) and the CDC's Emergency Preparedness for Radiation Emergencies website at <https://www.emergency.cdc.gov>.

Radiological Monitoring Personal Information

(All emergency responders and members of the public exposed to radiation will require future medical monitoring. Collect the following information from each person and retain it until requested by the Department of Health and Human Services)

Date Name

First Responder? Civilian? Gender Date of Birth (Approximate)

Home Address (Street or PO Box, City, State, Zip Code)

Telephone(s)

Email Address(es)

(The following is helpful for medical evaluation. Collect if you have time without delaying treatment of the injured.)

Date of Exposure Time of Exposure

Location (describe the location where the person received his or her exposure)

What was the exposure?

Is the level of exposure known? Duration of exposure?

Did the person have any open wounds? Did the person use respiratory protection? What kind?

Did the person eat or drink in the area? Did you find any external contamination on the person?

Emergency Contact Information

Name

Home Address (Street or PO Box, City, State, Zip Code)

Telephone(s) Employer

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| **Appendix A: Emergency Support Function #9**

This appendix includes the official ESF #9 as of June 2016. Official source:
https://www.fema.gov/sites/default/files/2020-07/fema_ESF_9_Search-Rescue.pdf

Emergency Support Function #9 – Search and Rescue Annex

ESF Coordinator:

Department of Homeland Security/
Federal Emergency Management Agency

Primary Agencies:

Department of Homeland Security/
Federal Emergency Management Agency
Department of Homeland Security/
U.S. Coast Guard
Department of the Interior/National Park
Service
Department of Defense

Support Agencies:

Department of Agriculture
Department of Commerce
Department of Defense
Department of Health and Human
Services
Department of Homeland Security
Department of the Interior
Department of Justice
Department of Labor
Department of Transportation
National Aeronautics and Space
Administration
U.S. Agency for International
Development

INTRODUCTION

Purpose

Emergency Support Function (ESF) #9 – Search and Rescue (SAR) deploys Federal SAR resources to provide lifesaving assistance to local, state, tribal, territorial, and insular area authorities, including local SAR Coordinators and Mission Coordinators, when there is an actual or anticipated request for Federal SAR assistance.

Scope

During incidents or potential incidents requiring a unified SAR response, Federal SAR responsibilities reside with ESF #9 primary agencies that provide timely and specialized SAR capabilities. Support agencies provide specific capabilities or resources that support ESF #9. Federal SAR response operational environments are classified as:

Structural Collapse Urban Search and Rescue (US&R): includes operations for natural and manmade disasters and catastrophic incidents, as well as other structural collapse operations that primarily require Department of Homeland Security (DHS), Federal Emergency Management Agency (FEMA) US&R task force operations.

Maritime/Coastal/Waterborne SAR: includes operations for natural and manmade disasters that primarily require air, cutter, boat, and response team operations.

Land SAR: includes operations that require aviation and ground forces to meet mission objectives, other than maritime/coastal/waterborne and structural collapse SAR operations as described above.

SAR services include distress monitoring; incident communications; locating distressed personnel; and coordinating and executing rescue operations, including extrication and/or evacuation as well as providing medical assistance and civilian services through the use of public and private resources to assist persons and property in potential or

Emergency Support Function #9 – Search and Rescue Annex

ESF Coordinator:

Department of Homeland Security/
Federal Emergency Management Agency

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Department of Homeland Security/
Federal Emergency Management Agency
Department of Homeland Security/
U.S. Coast Guard
Department of the Interior/National Park
Service
Department of Defense

Support Agencies:

Department of Agriculture
Department of Commerce
Department of Defense
Department of Health and Human
Services
Department of Homeland Security
Department of the Interior
Department of Justice
Department of Labor
Department of Transportation
National Aeronautics and Space
Administration
U.S. Agency for International
Development

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SAR services include distress monitoring; incident communications; locating distressed personnel; and coordinating and executing rescue operations, including extrication and/or evacuation as well as providing medical assistance and civilian services through the use of public and private resources to assist persons and property in potential or

Emergency Support Function #9 – Search and Rescue Annex

actual distress. No provision of this annex is to be construed as an obstruction to prompt and effective action by any agency to assist persons in distress.

RELATIONSHIP TO THE WHOLE COMMUNITY

This section describes how ESF #9 relates to other elements of the whole community.

Local, State, Tribal, Territorial, and Insular Area Governments

Local, state, tribal, territorial, and insular area authorities are responsible for SAR within their respective jurisdictions and typically designate a SAR Coordinator to provide integration and coordination of all SAR services.

If an affected local, state, tribal, territorial, or insular area government publishes guidance or a plan for conducting unified SAR operations, that guidance or plan takes precedence.

The affected state requests state-to-state assistance through the Emergency Management Assistance Compact (EMAC). Other local SAR resources are requested by the affected locality through other mutual aid and assistance agreements. Non-Federal SAR resources are, as appropriate, incorporated into any coordinated SAR operations.

Federal SAR responders assist and support local, state, tribal, territorial, and insular area SAR capabilities for incidents requiring a coordinated Federal response.

Federal Government

Specific information on Federal Government actions is described in the following sections.

CORE CAPABILITES AND ACTIONS

ESF Roles Aligned to Core Capabilities

The following table lists the response core capability that ESF #9 most directly supports along with the related ESF #9 actions. Though not listed in the table, all ESFs, including ESF #9, support the following core capabilities: Planning, Operational Coordination, and Public Information and Warning.

Emergency Support Function #9 – Search and Rescue Annex

Core Capability	ESF #9 – Search and Rescue
<p>Mass Search and Rescue Operations</p>	<ul style="list-style-type: none"> • Activates when an incident is anticipated or occurs and may result in a request for a unified SAR response to an affected area. • Federal SAR responders assist and support local, state, tribal, territorial, and insular area SAR capabilities in incidents requiring a coordinated Federal response. No provision of this annex is to be construed as an obstruction to prompt and effective action by any agency to assist persons in distress. • Meets the specific needs of each incident and is scalable based upon the nature and magnitude of the event, the suddenness of onset, and the capability of local SAR resources. Response resources are drawn from ESF #9 primary and support agencies. • Conducts operations following the National Response Framework (NRF) and National Search and Rescue Plan (NSP), U.S. National SAR Supplement (NSS), Catastrophic Incident SAR (CISAR) Addendum, and other addenda that defines SAR responsibilities and provides guidance to the Federal departments and agencies with civil SAR mandates. <ul style="list-style-type: none"> – National Search and Rescue Plan (NSP): The NSP is the policy guidance of the signatory Federal departments and agencies for coordinating SAR services to meet domestic needs and international commitments. – National SAR Supplement (NSS): This document provides implementation guidance on the International Aeronautical and Maritime Search and Rescue Manual and the NSP. – Catastrophic Incident SAR (CISAR) Addendum to the NSS: This document provides a description of the unified SAR response to catastrophic incidents, guides Federal authorities involved in the response, and informs local, state, tribal, territorial, and insular area authorities on what to expect of/from Federal SAR responders. • Operates under the Economy Act¹ when there is no Stafford Act declaration. • Assesses the specific SAR requirements and assigns one of the four primary agencies as the overall primary agency for SAR for that particular incident. Designation is dependent upon incident circumstances and the type of response required. • Conducts the following actions when assigned as the overall primary agency for a particular incident: <ul style="list-style-type: none"> – Coordinates planning and operations between primary and support agencies. – Coordinates resolution of conflicting operational demands for SAR response resources. – Provides representation to appropriate incident facilities (i.e., National Response Coordination Center [NRCC], Regional Response Coordination Center [RRCC], Joint Field Office [JFO], emergency operations centers [EOCs]). • All ESF #9 primary agencies provide support to the designated overall primary agency as required.

¹ 31 U.S.C. 1535-1536 (2007): This act authorizes Federal departments and agencies to provide goods or services on a reimbursable basis to other Federal departments and agencies.

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Agency Actions

Primary Agency	Actions
<p>Department of Homeland Security (DHS)</p>	<p>Federal Emergency Management Agency (FEMA)</p> <ul style="list-style-type: none"> • Serves as the overall primary agency to accomplish the ESF #9 mission during structural collapse SAR operations in incidents requiring a coordinated Federal response. • Conducts the following actions when DHS/FEMA is designated the overall primary agency: <ul style="list-style-type: none"> – Manages US&R task force and Incident Support Team (IST) deployments in the affected area. – Coordinates logistical support for US&R assets during field operations. – Coordinates the provisioning of additional support assets. – Provides representation, as required, at the NRCC, JFO, and local, state, tribal, territorial, and insular area EOCs. – Provides incident reports, assessments, and situation reports as required. – Coordinates with local, state, tribal, territorial, insular area, and Federally designated SAR authorities to integrate Federal SAR resources. • US&R includes operations for natural and manmade disasters and catastrophic incidents, as well as other structural collapse operations that primarily require DHS/FEMA US&R task force operations. • The National US&R Response System integrates DHS/FEMA US&R task forces, Incident Support Teams (IST), and technical specialists. • The Federal US&R response integrates DHS/FEMA task forces in support of unified SAR operations conducted following the NSP. • Develops national US&R policy; provides planning guidance and coordination assistance; standardizes task force procedures; evaluates task force operational readiness; funds special equipment and training within available appropriations; and reimburses, as appropriate, task force costs incurred as a result of ESF #9 deployment. • The National US&R Response System is prepared to deploy and initiate operations immediately in support of ESF #9. The task forces are staffed primarily by emergency services personnel who are trained and experienced in collapsed structure SAR operations and possess specialized expertise and equipment. • Upon activation under the NRF, DHS/FEMA US&R task forces are considered Federal assets under the Homeland Security Act of 2002, the Robert T. Stafford Disaster Relief and Emergency Assistance Act, and other applicable authorities.

Emergency Support Function #9 – Search and Rescue Annex

Primary Agency	Actions
DHS (continued)	<ul style="list-style-type: none"> • ISTs provide coordination and logistical support to US&R task forces during emergency operations. They also conduct needs assessments and provide technical advice and assistance to local, state, tribal, territorial, and insular area government emergency managers. • Reimburses the parent sponsoring agencies for US&R task forces for authorized US&R deployments. DHS/FEMA is authorized to reimburse such activities when there is a Stafford Act declaration or in anticipation of a declaration. For non-Stafford Act US&R deployments, the Federal department or agency requesting US&R assistance reimburses DHS/FEMA following provisions contained in the Financial Management Support Annex. DHS/FEMA uses the funding provided by the requesting Federal department or agency to reimburse the sponsoring agency for the task forces. • Conducts ESF #9 SAR operations for incidents where DHS/FEMA is the overall primary agency and follows the National US&R Response System manuals, NSP, NSS, and CISAR Addendum. • Works under the following authorities when performing US&R: <ul style="list-style-type: none"> – Homeland Security Act of 2002 (as amended): 6 U.S.C. 722: This section codified US&R as a system within DHS/FEMA. "There is in the Agency a system known as the Urban Search and Rescue Response System." – Stafford Act: 42 U.S.C. 5121-5207: This act authorizes the President (assisted by DHS/FEMA) to declare major disasters and emergencies in the United States and provide assistance to local, state, tribal, territorial, and insular area governments. The President may use the services of local, state, tribal, territorial, and insular area governments for the purposes of the act, which includes addressing immediate threats to life and property (e.g., SAR operations). – Post-Katrina Emergency Management Reform Act: P.L. 109-295 (2006): This act expands the scope of ESF #9 from only US&R to include all types of SAR activities. Follow-on Congressional guidance established the organizational structure. It codified US&R as a system within DHS/FEMA in the Homeland Security Act of 2002 (as amended). It also mandated DHS/FEMA to develop a Federal response capability to rapidly and effectively deliver assistance essential to saving lives; protecting property or public health and safety; and carrying out the mission of DHS/FEMA by conducting emergency operations to save lives and property.

Emergency Support Function #9 – Search and Rescue Annex

Primary Agency	Actions
DHS (continued)	<p>U.S. Coast Guard (USCG)</p> <ul style="list-style-type: none"> • Serves as the overall primary agency to accomplish the ESF #9 mission during maritime/coastal/waterborne SAR operations in incidents requiring a coordinated Federal response. • Conducts SAR operations for incidents where DHS/USCG is the overall primary agency and follows the SAR response structure as outlined in the NSP, NSS, CISAR Addendum, USCG SAR Addendum, and other DHS/USCG directives. • Maritime/coastal/waterborne SAR includes operations for natural and manmade disasters that primarily require DHS/USCG air, cutter, boat, and response team operations. The Federal maritime/coastal/waterborne SAR response integrates DHS/USCG resources in support of unified SAR operations conducted per the NSP. • Personnel are trained and experienced in maritime/coastal/waterborne SAR operations and possess specialized expertise, facilities, and equipment for conducting an effective response to distress situations. • Develops, maintains, and operates rescue facilities for SAR in waters subject to U.S. jurisdiction and is designated the primary agency for maritime/coastal/waterborne SAR under ESF #9. • Uses staffing at Area, District, and local Sector Command Centers promotes interagency coordination with local, state, tribal, territorial, and insular area emergency managers during incidents requiring a unified SAR response in which maritime/coastal/waterborne SAR resources allocation are required. • Develops, establishes, maintains, and operates rescue facilities under and over the high seas and waters subject to the jurisdiction of the United States consistent with 14 U.S.C. 2. • Performs any and all acts necessary to rescue and aid persons, as well as protect and save property in order to render aid to distressed persons, vessels, and aircraft on and under the high seas and on waters over which the United States has jurisdiction per 14 U.S.C. 88. • Performs any and all acts necessary to render aid to persons and protect and save property imperiled by flood, and may also render aid to persons and protect and save property at any time and at any place at which Coast Guard facilities and personnel are available and can be effectively utilized per 14 U.S.C. 88. • Conducts the following actions when USCG is designated the overall primary agency for incidents: <ul style="list-style-type: none"> – Manages DHS/USCG SAR resources in the affected area. – Coordinates the provisioning of additional support assets. – Coordinates with local, state, tribal, territorial, insular area and Federally designated SAR authorities to integrate Federal SAR resources. – Provides representation, as required, at the NRCC, JFO, and local, state, tribal, territorial, and insular area EOCs. – Provides incident reports, assessments, and situation reports as required.

Emergency Support Function #9 – Search and Rescue Annex

Primary Agency	Actions
<p>Department of Interior (DOI)</p>	<p>National Park Service (NPS)</p> <ul style="list-style-type: none"> • Shares responsibility with the Department of Defense (DOD) as the overall primary agency for a particular incident to accomplish the ESF #9 mission during land SAR operations in incidents requiring a coordinated Federal response. • Conducts ESF #9 SAR operations for incidents where DOI/NPS and/or DOD are the overall primary agency and follows the SAR response structure as outlined in the NSP, NSS, CISAR Addendum, and other relevant DOI/NPS and DOD SAR procedures, directives, and manuals. • Possesses SAR resources that are specially trained to operate in various roles, including ground search, small boat operations, swiftwater rescue, helo-aquatic rescue, and other technical rescue disciplines. DOI/NPS maintains preconfigured teams that include personnel and equipment from DOI/NPS, U.S. Fish and Wildlife Service, U.S. Geological Survey, Bureau of Indian Affairs, and other DOI components in planning for ESF #9. • Conducts the following actions when DOI/NPS is designated the overall primary agency for incidents: <ul style="list-style-type: none"> – Manages DOI/NPS land SAR resources in the affected area. – Coordinates the provisioning of additional support assets. – Coordinates with local, state, tribal, territorial, insular area, and Federally designated SAR authorities to integrate Federal SAR resources. – Coordinates logistical support for DOI/NPS resources during field operations. – Provides representation, as required, at the NRCC, JFO, and local, state, tribal, territorial, and insular area EOCs. – Provides incident reports, assessments, and situation reports as required. • Assumes authority to provide emergency rescue, firefighting, and cooperative assistance to public safety agencies for related purposes outside of the National Park System.

Emergency Support Function #9 – Search and Rescue Annex

Primary Agency	Actions
<p>Department of Defense (DOD)</p>	<ul style="list-style-type: none"> • Shares responsibility with DOI/NPS as the overall primary agency for accomplishing the ESF #9 mission during land SAR operations in incidents requiring a coordinated Federal response. • Conducts the following actions through U.S. Northern Command (USNORTHCOM) and U.S. Pacific Command (USPACOM) when DOD is designated the overall primary agency for incidents: <ul style="list-style-type: none"> – Manages DOD SAR resources in the affected area. – Coordinates the provisioning of additional support assets. – Coordinates with local, state, tribal, territorial, insular area, and Federally designated SAR authorities to integrate Federal SAR resources. – Provides representation, as required, at the NRCC, JFO, and local, state, tribal, territorial, and insular area EOCs. – Provides incident reports, assessments, and situation reports as required. • Considers specific actions for operations involving DOD: <ul style="list-style-type: none"> – Coordinates facilities, resources, and special capabilities that conduct and support air, land, and maritime SAR operations according to applicable directives, plans, guidelines, and agreements, when requested by USNORTHCOM and/or USPACOM. – USNORTHCOM and USPACOM provide resources for the organization and coordination of civil SAR services and operations within their assigned SAR regions when requested to assist local, state, tribal, territorial, insular area, and Federal authorities. – If DOD SAR capabilities deploy at the direction of the Air Force Rescue Coordination Center in support of the NSP, and subsequently if the Stafford Act is invoked, those capabilities are administered by the NRF and ESF #9. As soon as practical, a DHS/FEMA or other department/agency mission assignment is submitted to and approved by DOD for those capabilities' continued support. • Provides DOD policy guidance on the following items: <ul style="list-style-type: none"> – DOD Support to Civil Search and Rescue (DODI 3003.01): States that DOD shall support domestic civil authorities by providing civil SAR service to the fullest extent practicable on a noninterference basis with primary military duties. – Defense Support of Civil Authorities (DODD 3025.18): Provides guidance on the provision of DOD and designated National Guard capabilities when requested by civil authorities.

Support Agency	Actions
<p>Department of Agriculture</p>	<p>United States Forest Service</p> <ul style="list-style-type: none"> • Develops standby agreements to provide equipment and supplies from the National Interagency Fire Center (NIFC) Cache System at the time of deployment. • Develops contingency plans for use of NIFC contract aircraft during incidents. • If available, provides equipment and supplies from the NIFC Cache System and use of NIFC contract aircraft.

Emergency Support Function #9 – Search and Rescue Annex

Support Agency	Actions
Department of Commerce	<p>National Oceanic and Atmospheric Administration</p> <ul style="list-style-type: none"> • Acquires and disseminates weather data, forecasts, and emergency information. • Provides weather information essential for efficient SAR. • Predicts pollutant movement and dispersion over time (marine and atmospheric). • Assesses areas of greatest hazard following a marine or atmospheric release. • Provides satellite services for detecting and locating persons in potential or actual distress in the wilderness, maritime, and aeronautical environments.
Department of Defense (DOD)	<p>National Geospatial-Intelligence Agency (NGA)</p> <ul style="list-style-type: none"> • Coordinates and manages the timely tasking, acquisition, analysis, and delivery of satellite imagery or imagery-derived products as directed by the primary agency. • Provides expert analysis of imagery to determine damage levels and other elements of essential information as needed. • Provides technical expertise/analysis from other imagery sources, if such expertise resides within DOD/NGA. • Provides mobile geospatial intelligence, including technical experts (e.g., imagery analysts and geospatial analysts) and robust communications to support SAR field teams or other DHS/FEMA field teams, as requested by the primary agency. • Provides imagery-derived and geospatial intelligence analysis in preparation for potential disasters or emergencies. • Coordinates the release and dissemination of DOD/NGA products and/or data following applicable security classifications, licensing, copyright agreements, and limited distribution restrictions. <p>U.S. Army Corps of Engineers (USACE)</p> <ul style="list-style-type: none"> • Deploys specially trained and equipped structural engineers to augment DHS/FEMA US&R task forces, ISTs, military technical rescue organizations, and general purpose troops during structural collapse incidents and other disaster response missions. • Provides technical support for rescue engineering capability and advises task force leaders and commanders to assess damage, mitigate hazards, enable safe entry, and assure mobility throughout a disaster site to enable rescue and lifesaving operations. • Develops doctrine, training programs, and national standards for structural collapse response operations; conducts initial training courses, advanced coursework, exercises and continuing education for all DHS/FEMA US&R Structures Specialists, and other organizations requiring this capability. • Maintains specialized, pre-positioned, deployable equipment caches to support US&R/Disaster Response operations.
Department of Health and Human Services	<ul style="list-style-type: none"> • Provides personnel for liaisons and support for medical field operations; medical equipment, supplies, and pharmaceuticals; and veterinary support.

Emergency Support Function #9 – Search and Rescue Annex

Support Agency	Actions
Department of Homeland Security	<p>Customs and Border Protection (CBP)</p> <ul style="list-style-type: none"> • Maintains Border Patrol Search, Trauma, and Rescue (BORSTAR) teams, which are highly specialized units capable of responding to emergency SAR situations anywhere in the United States. • Maintains air and marine assets to support SAR transportation operations. • Manages DHS/CBP SAR resources in the affected area. • Coordinates the provisioning of additional support assets. • Coordinates with local, state, tribal, territorial, insular area and Federally designated SAR authorities to integrate Federal SAR resources. • Provides representation, as required, at the NRCC, JFO, and local, state, tribal, territorial, and insular area EOCs. • Provides incident reports, assessments, and situation reports as required.
Department of the Interior	<p>U.S. Geological Survey</p> <ul style="list-style-type: none"> • Provides personnel with appropriate technical disciplines and specialized technology to support geospatial analysis and mapping products in support of ESF #9 primary agencies.
Department of Justice	<ul style="list-style-type: none"> • Coordinates force protection as requested and approved pursuant to the ESF #13 mission. • Provides assistance with the development and maintenance of tort liability claims coverage for US&R task force and IST personnel engaged in mobilization, deployment, and field operations.
Department of Labor	<p>The Mine Safety and Health Administration</p> <ul style="list-style-type: none"> • Provides mine rescue teams, mobile command centers, seismic location systems, TV probe systems, gas sampling analysis, and robot explorers. <p>The Department of Labor Office of Workers' Compensation Programs</p> <ul style="list-style-type: none"> • Through its Federal Employees' Compensation Program, provides workers compensation guidance, claims resolution, and coverage for US&R task force and IST personnel while they are engaged in mobilization, deployment, and field operations. <p>The Occupational Safety and Health Administration</p> <ul style="list-style-type: none"> • Implements procedures contained in the Worker Safety and Health Support Annex to provide onsite technical assistance, including the evaluation of SAR team exposure to hazardous substances and the dangers of structural collapse.
Department of Transportation	<p>Federal Aviation Administration</p> <ul style="list-style-type: none"> • Assumes sole authority to manage the National Airspace System (NAS), which includes operating a safe, secure, and efficient air traffic system; oversight and certification of aircraft and airmen; regulation of airspace; promotion of air commerce; and the support of America's national defense (49 U.S.C.). • Supports activities to protect and recover NAS operations.

Emergency Support Function #9 – Search and Rescue Annex

Support Agency	Actions
National Aeronautics and Space Administration	<ul style="list-style-type: none"> • Provides personnel in appropriate technical disciplines (e.g., Disaster Assistance and Rescue Team). • Provides temporary use of facilities for mobilization centers and staging areas for SAR assets.
U.S. Agency for International Development	<ul style="list-style-type: none"> • Manages the support of international SAR teams to a domestic U.S. disaster following a Stafford Act Declaration under the International Assistance System Concept of Operations (IAS CONOPS) and in support of the NRF’s International Coordination Support Annex.
Department of State	<ul style="list-style-type: none"> • Designates the State Task Force (STF) as the sole entity within the Department of State responsible for coordinating formal offers of international assistance if DHS/FEMA does not activate the IAS CONOPS and proactive offers of assistance from foreign countries or international/multilateral organizations are received. <ul style="list-style-type: none"> – If the STF has not been established, a lead bureau or the Operations Center’s Crisis Management Support (CMS) office is designated. – Requests all offers be forwarded to the STF (or the lead bureau or CMS office, as appropriate) for dispensation.

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Appendix B: Structural Marking Systems

FEMA Building Marking System

Federal, State, Tribal, Territorial/Insular Area, and local CISAR responders must have a uniform, standardized system for marking buildings or other structures to indicate the search status. Having a common search marking system reduces the possibility of redundant searches.

In the United States, the FEMA Building Marking System is used. Markings are placed on the front of searched structures, to the right, as high as possible from the main entrance. Orange paint or duct tape with construction grade crayons may be used.

Figure 6-1: FEMA Building Marking System (Commence Search); Figure 6-2: FEMA Building Marking System (Completed Search); and Figure 6-3: FEMA Building Marking System (Modified Mark-Incomplete Search) detail the marking system.

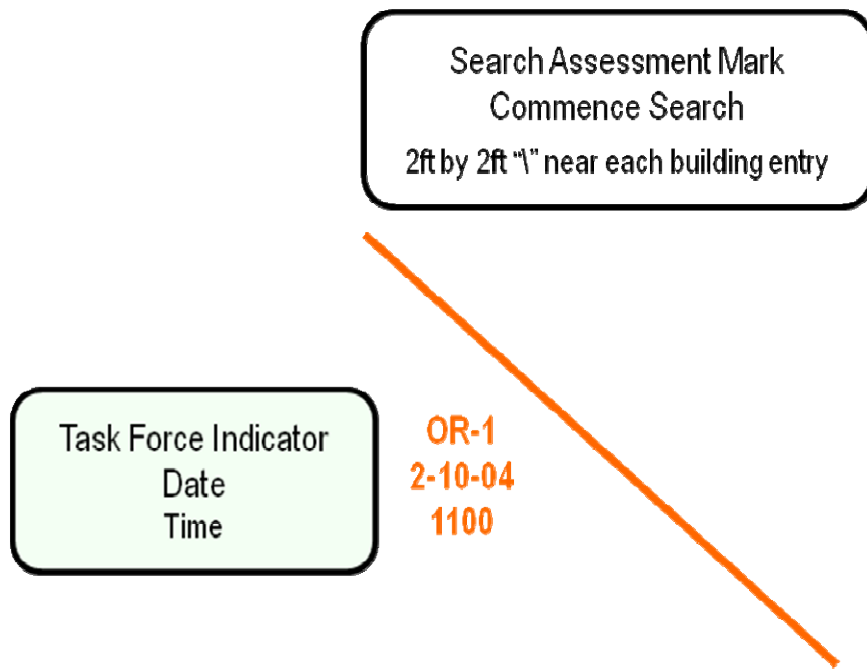


Figure 6-1: FEMA Building Marking System (Commence Search)

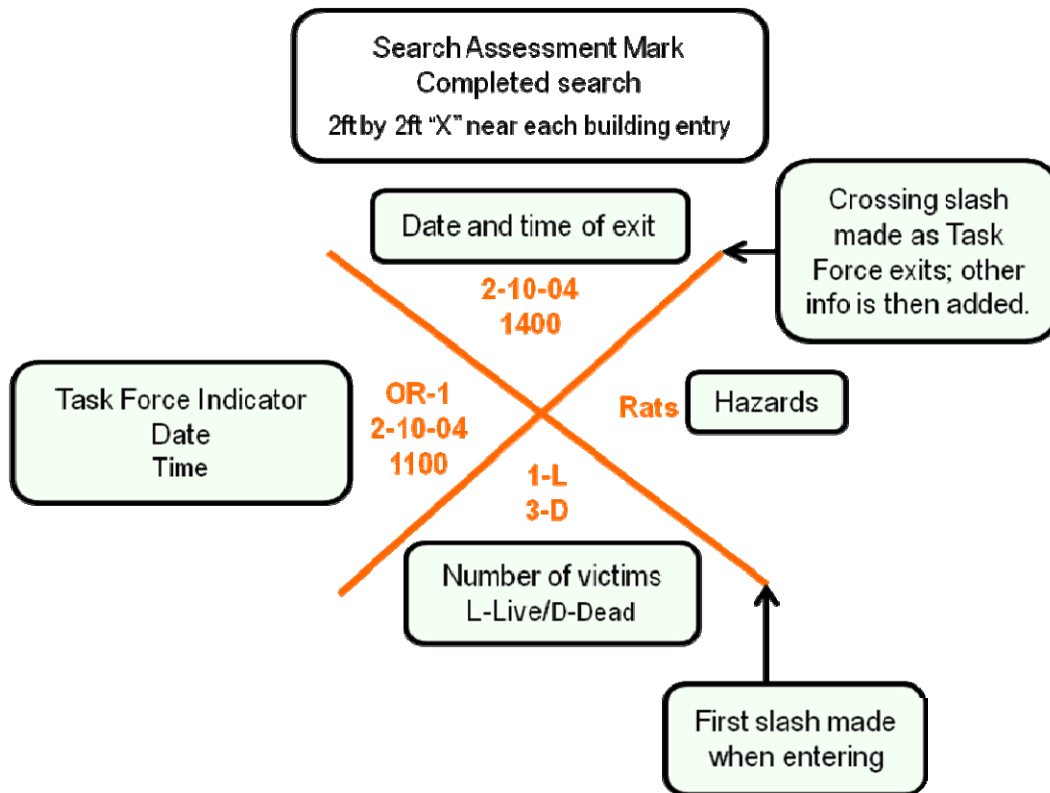


Figure 6-2: FEMA Building Marking System (Completed Search)

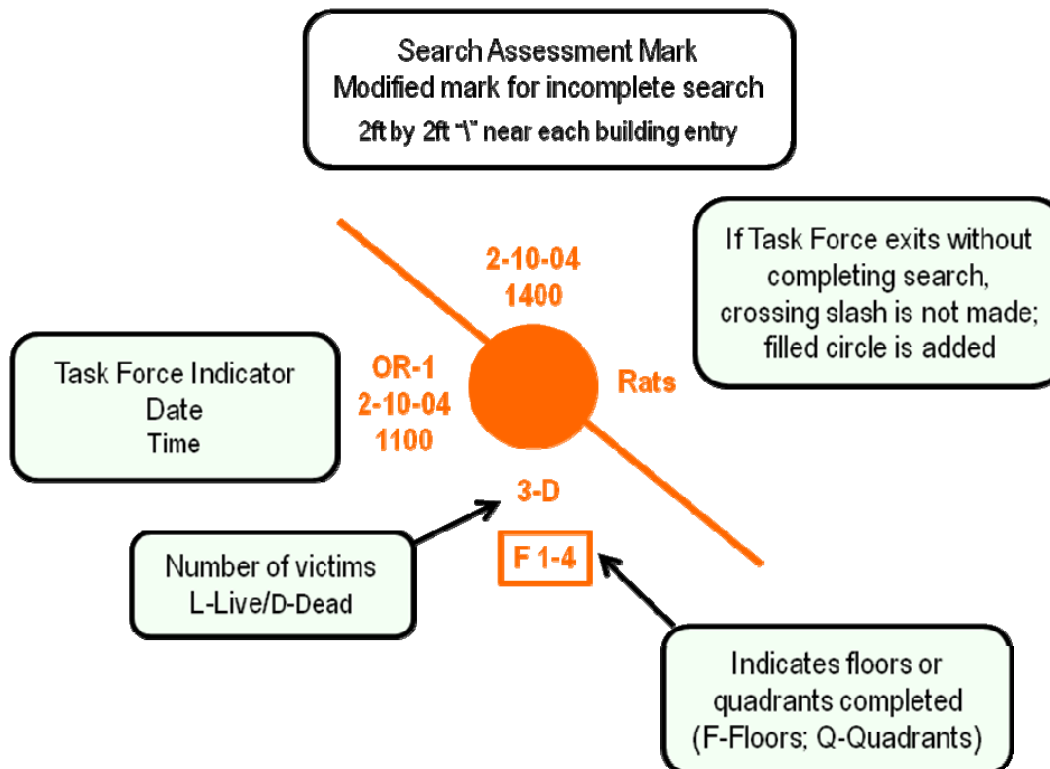


Figure 6-3: FEMA Building Marking System (Modified Mark-Incomplete Search)

Building Marking Template

The diagram shows a square template with various fields for recording search information. At the top right, there are fields for 'Date of Exit' and 'Time of Exit'. On the left side, there are fields for 'Task Force', 'Date of Entry', and 'Time of Entry'. In the center, there is a large 'X' formed by a solid black diagonal line and a dashed white diagonal line. To the right of the 'X' is a field for 'Hazards'. Below the 'X' are two small circles, one labeled '-L' and one labeled '-D'. At the bottom of the square is a large rectangular area labeled 'Areas searched if incomplete'. Below this area is a legend titled 'SEARCH MARKING LEGEND' with two columns: 'Incomplete Search/No Entry' and 'Completed Search'. The 'Incomplete Search/No Entry' column shows a square with a diagonal line from top-left to bottom-right, with 'Co-1' on the left, '2-24' above, '1150' below, '2-L' to the left of the line, and '3-D' below the line. The 'Completed Search' column shows a square with a diagonal line from top-right to bottom-left, with 'Co-1' on the left, '2-24' above, '1150' below, '2-L' to the left of the line, and '3-D' below the line. The word 'RATS' is written to the right of the line.

Figure 6-4: Building Marking Template

To assist in maintaining standardized marking and recognized materials during multi-agency wide area searches, a peel and stick laminated placard, marked with an indelible marker, can be used in place of paint, tape, or crayons (Figure 6-4: Building Marking Template). These placards can greatly speed the marking process, are weather resistant, and have been designed to be comfortably carried by responders (5.5” x 4.25”).

United Nations Marking System

Outside of the U.S., the United Nations International Search and Rescue Advisory Group (INSARAG) searched building marking system is used. The INSARAG system is explained below and depicted in Figure 6-5: INSARAG Building Marking System on the next page.

A one meter by one meter square with G (“go”) or N (“no-go”), the team conducting the search, the date and time of the start of the search, and the date and time of the completion of the search written inside.

(Note: “G” and “N” describe whether the building is safe to enter for SAR responders.)

The number of live victims removed is written to the left of the square. The number of dead victims removed is written to the right of the square. Persons unaccounted for and/or location of other victims is written below the square.

Additional information on hazards pertaining to the structure is written above the square.

Any reference to building floor numbers use ground as G, 1 as the first floor above G, B1 as the first floor below G, and so forth. This is contrasted with US floor numbering that starts with 1 as the ground level.

Building Marking Template

Placards can be quickly manufactured by local commercial office supply companies. A suggested building marking template for the placards of various colors can be found at the NSARC website.

<https://cglink.uscg.mil/nsarc>

INSARAG marking squares are usually written in day-glow orange.

The circle around the mark is made at complete of the building search.

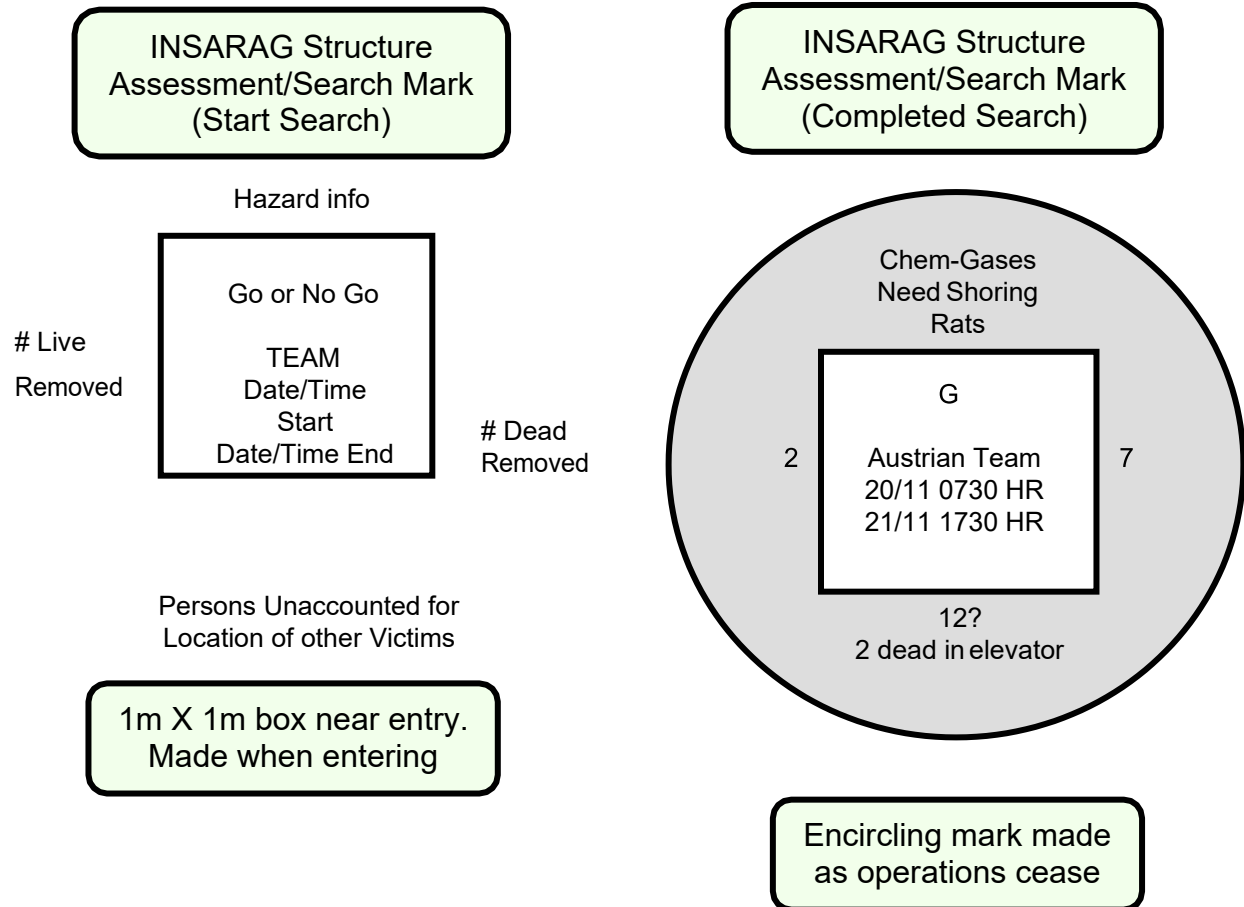


Figure 6-5: INSARAG Building Marking System

Appendix C: Temporary Flight Restrictions (TFRs)

Definition and Types

A Temporary Flight Restriction (TFR) is a regulatory action issued via the U.S. Notice to Airmen (NOTAM) system to restrict certain aircraft from operating within a defined area, on a temporary basis, to protect persons or property in the air or on the ground.

The Code of Federal Regulations, Title 14 (14 CFR) identifies TFRs for a variety of situations, including disaster response which is covered in 14 CFR 91.137.

14 CFR 91.137 TFRs may be issued to:

- Protect personnel and property on the surface or in the air from a hazard associated with an incident on the surface (14 CFR 91.137 (a) (1));
- Provide a safe environment for the operation of disaster relief aircraft (14 CFR 91.137 (a) (2)); or
- Prevent an unsafe congestion of sightseeing and other aircraft above an incident or event which may generate a high degree of public interest (91.137 (a) (3)).

(Note: Properly accredited news representatives are allowed into 91.137 (a)(2) and 91.137 (a)(3) TFRs if they file a flight plan with the appropriate FAA ATC facility specified in the Notice to Airmen and the operation is conducted above the altitude used by the disaster relief aircraft, unless otherwise authorized.)

Unless delegated, 14 CFR 91.137(a)(3) TFRs can only be issued by Mission Support at FAA HQ.

The second type of TFR that could be issued for a catastrophic incident or national security event is provided for in 14 CFR 99.7, Special Security Instructions. The FAA, in consultation with DoD and/or Federal security and intelligence agencies, may issue special security instructions to address situations determined to be detrimental to the interests of national defense.

For example:

The FAA uses 99.7 TFRs to protect National Special Security Events (NSSE) and other security sensitive events such as the Presidential inauguration; and

For CISAR operations, a 14 CFR 91.137 TFR will normally be used.

Requests and Issuance

Only the FAA may issue a TFR. However, the following entities may request the FAA issue a TFR for a specific disaster area:

- Military commands;
- Federal security and intelligence agencies; regional directors of the Office of Emergency Planning;
- State civil defense directors;
- Authorities directing or coordinating organized relief or response air operations;
- State Governors;
- FAA Flight Standards District Offices; or
- Aviation and sporting event officials.

Non-FAA authorities should contact the nearest air traffic control facility to request a TFR (If possible, have the location latitude/longitude in degrees/minutes/seconds format. See Section 2-10: Geo-Referencing.).

FAA authorities should contact their respective service area representative for non-emergency requests, the cognizant air route traffic control center for emergency requests and the System Operations Support Center (SOSC) for VIP or security TFRs.

TFR Information or Assistance

TFR assistance can be obtained from the SOSC by calling **202-267-8276**.

For any other security-related questions or concerns relating to aviation contact the Domestic Events Network (DEN) at **540-422-4423/24/or 25**.

Also note that the subject contingency TFRs and other related air traffic and airspace management measures used by the FAA to support CISAR and other response aviation operations will be planned, coordinated, and implemented in accordance with the FAA's Airspace Management Plan for Disasters (AMP).

TFR Proportions

TFRs can be issued as a cylinder based on a point, a polygon, or other shapes. Latitude and longitude, and/or a fixed radial distance from a navigational aid identify the point or corners of the TFR. A TFR always includes a range of altitudes. Rules are enforced about who can enter or leave a TFR and what can be done within the TFR airspace.

TFRs are sized to minimize disruption of surrounding airspace while meeting the needs of the requestor. See Figure 7-1 Rotary Wing Deconfliction within Disaster TFR as an example.

Mission Type Altitude Stratification

In the event there is a need for relatively high-density, low-altitude VFR response air missions (e.g., SAR and sling loads), the FAA may segregate select operations by mission type using altitude blocks within a TFR (see Figure 7-2: Mission Type Altitude Stratification within a TFR).

The FAA (specifically the FAA liaison to the AOB) can be of great assistance to the Air Operations Branch Director (AOBD)/SMC in developing and managing TFR/altitude stratification customized to the operational needs and local requirements of the response.

Mission type-based altitude stratification is designed to be used for VFR operations (i.e., “see and avoid” based flight).

Air missions operating within designated altitude blocks must remain in VFR operation under VMC. If a pilot is unable to do so because of expected or encountered Instrument Meteorological Conditions (IMC), the flight must depart the defined TFR stratified altitude structure by the safest route possible. The flight in question may resume its response air mission when it is able to resume VFR operations under VMC within the designated altitude block. If air traffic control (ATC) is available, the subject Pilot-in-Command (PIC) must also advise ATC and comply with any consequent ATC instructions.

The FAA will adjust this altitude stratification schema to meet the specific conditions of each disaster and the incident mission requirements.

Also note that response air missions – both those identified in the altitude stratification diagram and others – may be authorized to operate within altitude blocks not normally designated for their use. This can be done to address overriding safety concerns and/or mission needs (e.g., time-critical, life-saving activities). The FAA will also make location- and disaster-specific modifications to this altitude stratification scheme to accommodate any overlap with Class B or other controlled airspace, which may still be provided service by an FAA facility.

Additional Notes Regarding Altitude Stratification Schema

As indicated in Figure 7-2: Mission Type Altitude Stratification within a TFR on the next page, participating aircraft flying within this altitude stratification may be further separated using flight direction altitude blocks in accordance with the following:

- NORTH/EAST – from 360° to 179°
- SOUTH/WEST – from 180° thru 359°

All aircraft will use the local altimeter setting as directed by the appropriate ATC facility or nearest aeronautical weather reporting facility.

In addition, these altitude blocks do not constitute or supersede any ATC instructions.

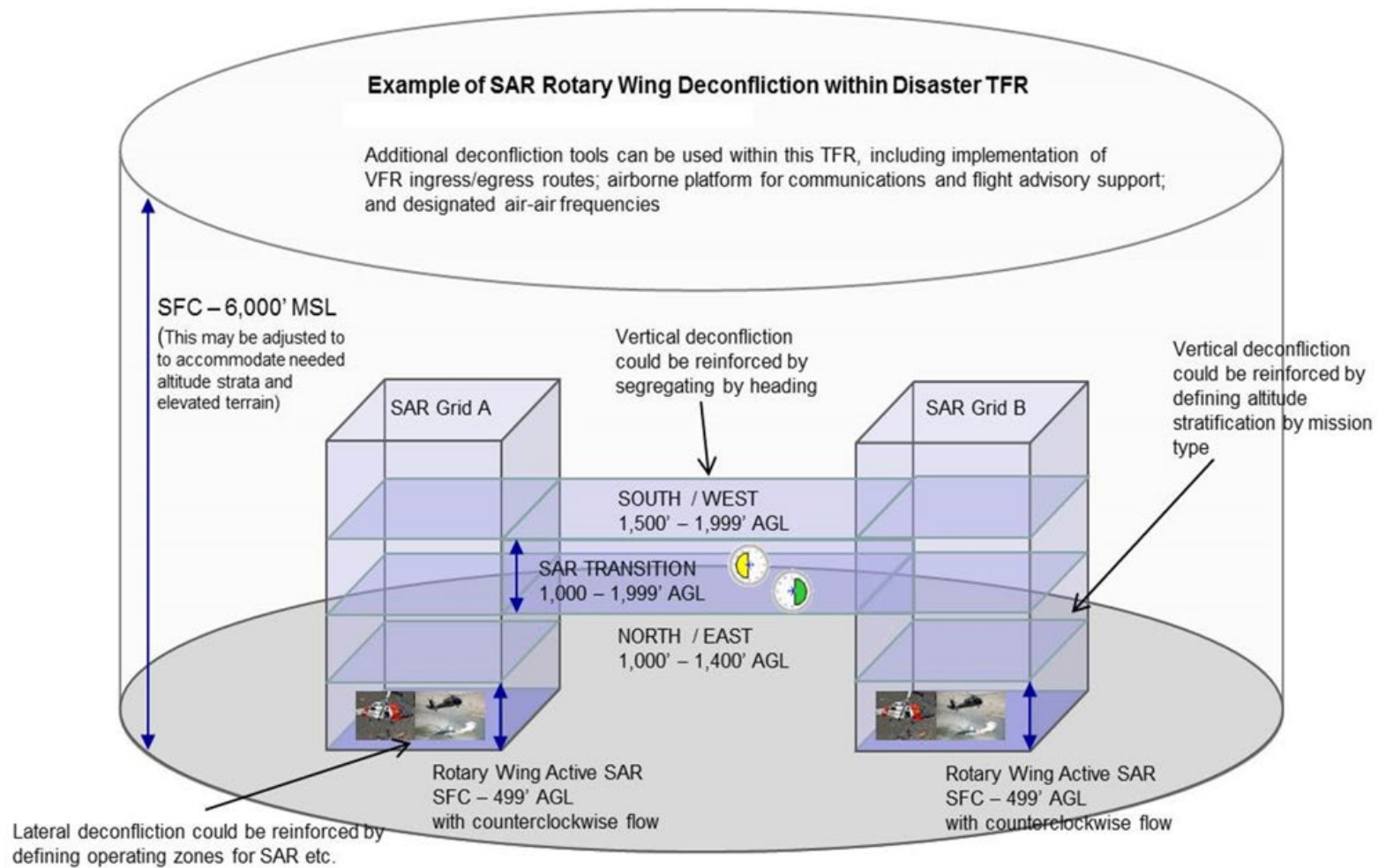


Figure 7-1: Rotary Wing Deconfliction within Disaster TFR

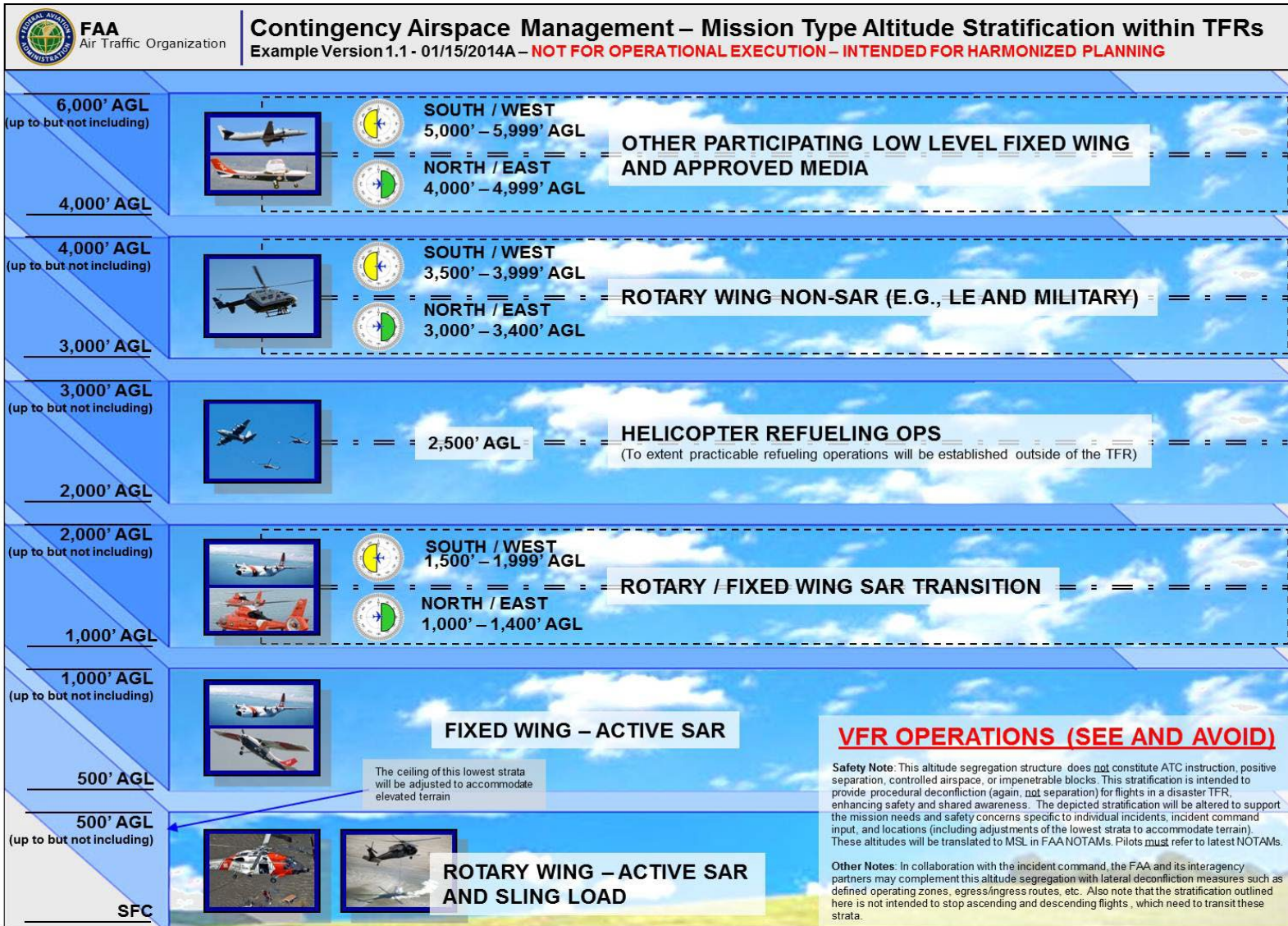


Figure 7-2: Mission Type Altitude Stratification within a TFR

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